Abstract

Title of dissertation: DOES PAIN INTENSITY AND PAIN TOLERANCE INFLUENCE ONE'S WILLINGNESS TO SEE A COUNSELOR IN ASIAN AMERICANS?

Gloria A. Huh, Doctor of Philosophy, 2017

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The Asian American population continues to underutilize psychological services. This study examined whether pain tolerance and pain intensity played a role in the help-seeking process for Asian American individuals. Moderated mediation was tested to explore whether the relationship between psychological distress and willingness to see a counselor was mediated by pain tolerance and pain intensity, separately; and moderated by Asian American values. Moderation with two moderators was tested with Asian American values and pain tolerance or pain intensity, separately, as two moderators in the relationship between psychological distress and willingness to see a counselor. Moderated mediation and moderation with two moderators were tested using the bias-corrected bootstrapping confidence interval method. There was no evidence to indicate that pain intensity or pain tolerance acted as mediators between the relationship between psychological distress and willingness to see a counselor. However, pain intensity was found to moderate the relationship between psychological distress and willingness to see

a counselor. Post hoc analyses were conducted to test specific subscales (depressive symptoms, emotional self-control, willingness to see a counselor for personal problems) and gender differences. Pain tolerance moderated the relationship between depressive symptoms and willingness to see a counselor for personal problems for women. Emotional self-control moderated the relationship between depressive symptoms and willingness to see a counselor for personal problems in the full sample and male sample.

DOES PAIN INTENSITY AND PAIN TOLERANCE INFLUENCE ONE'S WILLINGNESS TO SEE A COUNSELOR IN ASIAN AMERICANS?

by

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Dedication

This dissertation is dedicated to two individuals.

The first individual is the reason I live; the source of love and empathy; and a true embodiment of what it means to be a counselor, healer, and friend: Jesus Christ.

The second person that I dedicate my dissertation to is Damon Lee Silvers, Ph.D., who was a great, patient, strong, and loving man. He went where no mentor had ever gone before and did what no one had ever done; he fearlessly entered the depths of my pain, walked with me in that place, and ushered me towards healing. I am indebted to him and ever so grateful for his compassion. It is only through his aid that I am able to claim my place in the counseling field. I will never forget his kindness. Dr. Silvers' counsel, wisdom, and enthusiasm for the therapeutic process have shown me that it is possible to be kind yet so sharp at the same time. There is no other psychologist that I respect more than him. As I build on my ever-growing curiosity and fascination with the intersubjective experience, I will think of him.

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I would like thank God for taking me on this professional journey. It is only through His guidance and provision that I am still standing and breathing today. “Trust in the Lord with all your heart, and do not lean on your own understanding. In all your ways acknowledge Him and He will make straight your paths” (Proverbs 3: 5-6, English Standard Version). It is all for His glory and honor. I am also indebted to my advisor and mentor, Matthew J. Miller, Ph.D., for stretching me and encouraging me to keep going. His belief in me has carried me through tough times and I am forever grateful. I could not have finished my work without his support and mentorship through the years. I would also like to thank my committee members, Drs. Mary Ann Hoffman, Dennis Kivlighan, Patricia Alexander, Derek Iwamoto, and Richard Q. Shin for providing diverse perspectives and valuable feedback that have improved the quality of my study from start to finish. Thank you to all those who helped brainstorm ways to recruit Asian American participants: Deborah Kim, Edwin Kim, Isaiah Lee, Sohee Huh, Rebecca Yi, Shachia Bryan, and Sharai Bryan. I would also like to thank my parents, brother, and twin sister. Their unconditional love and financial support have made the bad times just a little less painful and the good times taste so sweet.

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Chapter 1: Introduction to the Problem

Despite substantial empirical evidence showing the effectiveness of psychotherapy (i.e., Wampold, 2010), Asian American individuals are more likely to underutilize psychological services compared to the general population (Abe-Kim et al., 2007; Le Meyer, Zane, Cho, & Takeuchi, 2009; Sorkin et al., 2009; Sorkin et al., 2011; Sue, Cheng, Saad, & Chu, 2012; Takeuchi et al., 2007). Within this heterogeneous racial group, spanning more than 20 ethnicities and varying cultural values and behaviors (Leong & Lau, 2001; U.S. Census Bureau, 2010a), these underutilization rates persist in the Asian American population as a whole (Le Meyer et al., 2009) but also in specific subgroups in need of specific mental health services such as addictions or psychiatric treatment (Le Meyer et al., 2009; SAMHSA, 2013). Asian American individuals who are in need of psychological services are less likely to seek help for psychological concerns.

Historically, the underutilization of psychological services by this population has been explained by cultural (e.g., Asian values; Kim, Li, & Ng, 2005) and psychological (e.g., willingness to seek help, Gim, Atkinson, & Whiteley, 1990) factors (Vogel, Wester, & Larson, 2007). Instead of focusing on culturally specific and psychological factors, the present study took a novel approach by integrating two physiological factors, pain tolerance and pain intensity, to examine how physiological and psychological processes interact in the help-seeking process. Pain intensity is the subjective perception of the painfulness of a pain stimulus (Hasson & Arnetz, 2005; McCormack, Horne, & Sheather,

1988). Pain tolerance is the amount of time that one can handle being exposed to pain until one cannot take the pain anymore (IASP, 2015).

Examining pain tolerance and pain intensity might help explain research findings that indicated that Asian Americans were more likely to: 1) exhibit somatic symptoms of psychological distress than emotional symptoms (U.S. D.H.H.S., 2001); 2) conceptualize pain as an inevitable part of life (Dickson & Kim, 2003; Tung, 2014); and 3) seek psychological help when their symptoms were severe (Bui & Takeuchi, 1992; Nyugen & Bornheimer, 2014; Shin, 2002). These trends may be further explained by assessing cultural factors such as the adherence to Asian American cultural beliefs and values. For example, beliefs that the mind and body are closely connected and difficult to differentiate (Chan, Ho, & Chow, 2002) may compel Asian American individuals to understand their pain – physical or emotional - unidimensionally by explaining their psychological symptoms in terms of physical terms. In addition, since physical pain is viewed as an inevitable part of life (Dickson & Kim, 2003), Asian Americans may feel compelled to endure pain longer, resulting in an increased pain tolerance and further delay in seeking treatment. This may be compounded by the culturally-based positive appraisal of the suppression of emotions and high pain tolerance.

Thus, higher pain tolerance might explain how despite experiencing symptoms of psychological distress, Asian Americans may still be less willing to seek counseling. This might also provide an empirical explanation for the phenomenon found in the Asian American population of delaying the utilization of psychological services until distress symptoms are severe (Bui & Takeuchi, 1992; Nyugen & Bornheimer, 2014; Shin, 2002). Determining that higher pain tolerance and lower pain intensity negatively affect the

relationship between higher psychological distress and willingness to seek counseling would also add a new perspective on the potential negative side to higher pain tolerance and lower pain intensity.

An additional factor to consider in this underutilization problem is Asian American values (Kim, Li, & Ng, 2005)—Asian cultural beliefs and values found in the Asian American population. The author hypothesized that cultural beliefs held in the Asian American population may explain lower rates of help-seeking behaviors in Asian American individuals. In this study, Asian American values (collectivism, conformity to norms, emotional self-control, family recognition through achievement, and humility) (Kim et al., 2005) were assessed because of their potential negative impact on how Asian American individuals address their psychological distress. For example, valuing emotional self-control, holding in one's emotions being seen as positive (Kim et al., 2005), and the expression of pain (Kim et al., 2005; Singh Sandhu, 1999) may compel Asian American individuals to ignore distress signals despite recognizing their pain. Additionally, a strong connection between the mind and body in addressing pain (Chan, Ho, & Chow, 2002) may lead to Asian American individuals addressing physical and mental pain similarly by accessing medical services (Chu & Sue, 2011) and reported somatic symptoms for their psychological distress (Takeuchi et al., 1998). In addition, beliefs that pain is an inevitable part of life (Dickson & Kim, 2003) may explain delaying treatment rather than readily addressing their distress symptoms.

An Integrative Conceptual Framework

In sum, this study tested an integrative pain, psychological distress, and cultural values model of Asian Americans' willingness to seek counseling. Specifically, it tested

whether physiological (pain tolerance, pain intensity) and cultural (Asian American values) factors moderated the relationship between psychological distress and willingness to see a counselor. In addition, this study tested moderated mediation and moderation hypotheses regarding the relationships between Asian American values, psychological distress, pain intensity and pain tolerance, and willingness to see a counselor outlined in Figures 1, 2, 3, and 4.

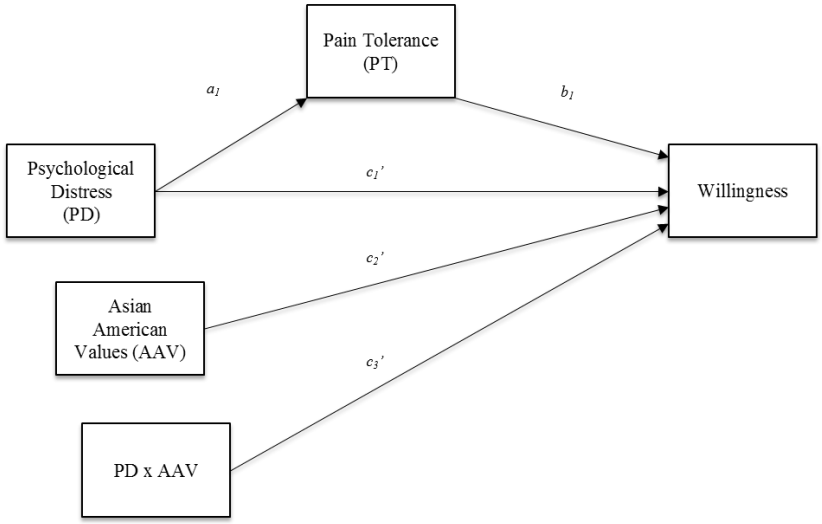


Figure 1. Predicted moderated mediation model with pain tolerance.

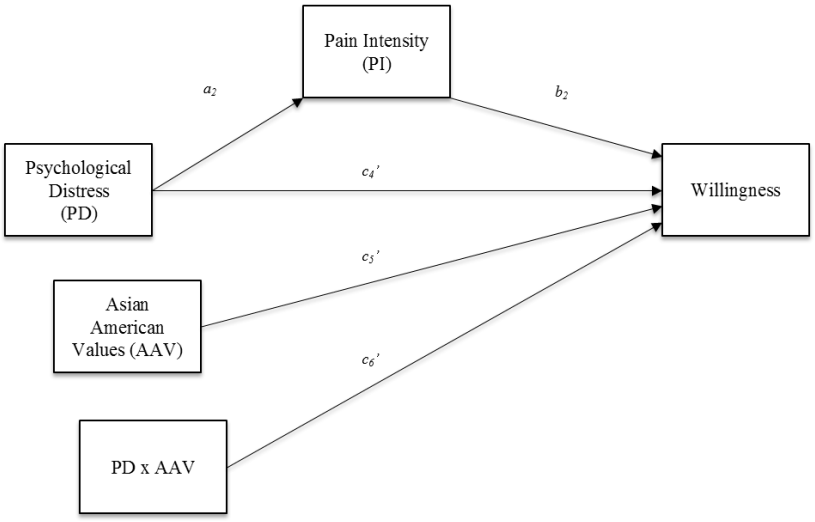


Figure 2. Predicted moderated mediation model with pain intensity.

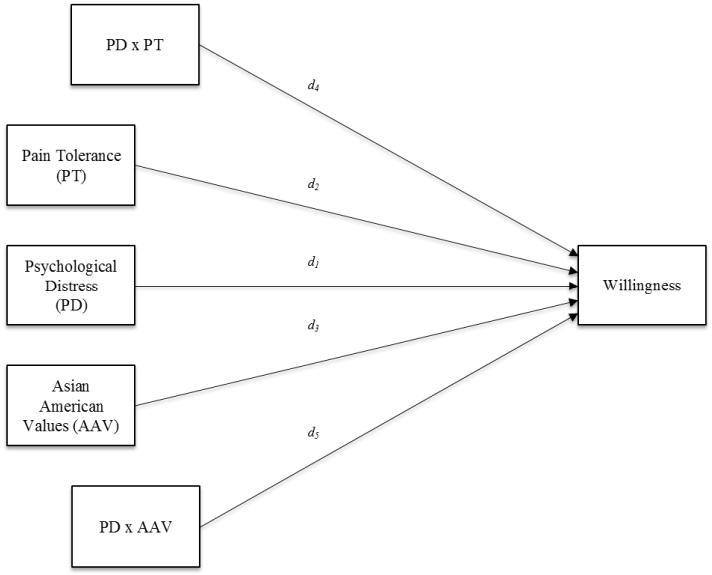


Figure 3. Predicted moderation model with pain tolerance.

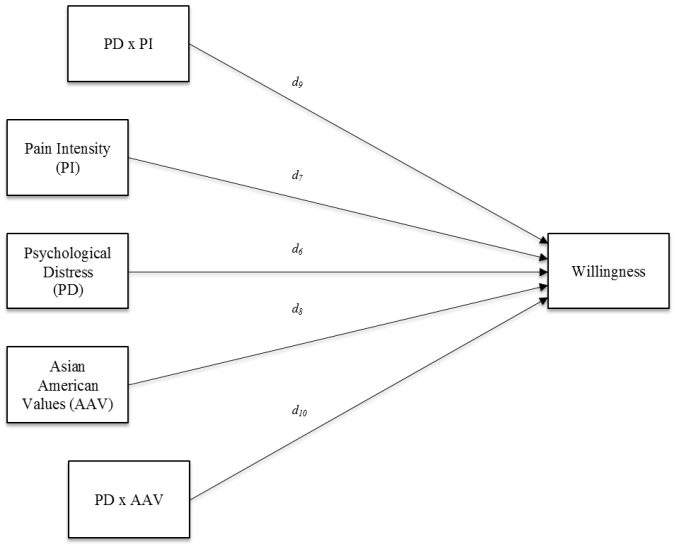


Figure 4. Predicted moderation model with pain intensity.

Psychological Distress. Individuals seek counseling to work on emotional, behavioral, and/or interpersonal issues and reduce their psychological distress (American Psychological Association, 2015). *Psychological distress* is defined by emotional turmoil or discomfort that affects one's quality of life and daily functioning (Drapeau, Marchand, & Beaulieu-Provost, 2012; Ridner, 2004). Synonyms include mental distress, emotional pain, and behavioral problems. This distressed mental state is associated with symptoms such as sad mood, tension, elevated heart rate, crying, restlessness, and hopelessness (Derogatis, 1993; Veit and Ware, 1983). Moreover, psychological distress can manifest in somatic symptoms such as dizziness, headaches, nausea, muscle aches, chest pain, and digestive problems (U.S. D.H.H.S., 2001; APA, 2013). These somatic manifestations vary across different cultures and hold different meanings depending on how cultures define those symptoms (Drapeau et al., 2012). This study focused primarily on the symptoms associated with an individual's mood and/or feelings and excluded somatic symptoms. Although emotional pain and physical pain have been found to similar (MacDonald & Leary, 2005), individuals have been found to react differently to pain depending on whether it is emotional or physical in nature (Woo et al., 2014). By reducing the overlap between emotional pain and physical pain, the researcher intended to explore how emotional pain and physical pain might differentially relate to other factors assessed in this study.

Willingness to See a Counselor. Counseling is effective in reducing psychological distress symptoms (Wampold, 2010). When individuals are in psychological distress, they are more likely to seek counseling (Nguyen & Bornheimer,

2014; Ware, Manning, & Duan, 1984). Researchers have examined the relationship between psychological distress and seeking help by focusing on one's willingness to seek counseling rather than one's actual help seeking behavior (Kim & Omizo, 2003; Kim & Park, 2009; Vogel & Wei, 2005). Applying a core principle found in the theory of reasoned action (TRA; Fishbein & Ajzen, 1975), studies have successfully used willingness as a proxy for the actual behavior of seeking counseling (Kim & Park, 2009; Vogel, Wester, Wei, & Boysen, 2005). TRA states that an individual's intention to engage in a particular behavior is the strongest predictor of actually engaging in that behavior (Fishbein & Ajzen, 1975). In regards to seeking help for psychological concerns, this help-seeking behavior is contingent upon whether individuals experience distress (Cepeda-Benito et al., 1998) and perceive disclosing emotions to be risky (Vogel, Wester, Wei, & Boysen, 2005).

Because Asian American individuals are less inclined to utilize psychological services (Masuda et al., 2009), examining individuals' willingness can provide meaningful information that is predictive of their help-seeking behaviors for psychological issues (Gim et al., 1990). For example, adherence to Asian values and willingness to see a counselor were inversely related even after controlling for age, generation status, and previous counseling experience (Kim & Omizo, 2003).

Pain Intensity and Pain Tolerance. Pain intensity and pain tolerance are dependent upon individuals' subjective experience of physical pain. Pain is "an unpleasant sensory and emotional experience associated with actual or potential tissue damage" (IASP, 2015). Pain is complex (Melzack & Casey, 1968) consisting of complex

neuro-networks that activate our bodily reactions to pain triggers with refined specificity (Melzack & Wall, 1965). Pain is comprised of three dimensions: the *sensory-discriminative* (intensity, location, quality, and duration), the *affective-motivational* (unpleasantness and the subsequent flight response), and the *cognitive-evaluative* (appraisal, cultural values, context, and cognitive state) (Melzack & Casey, 1968). The experience of pain reflects these three dimensions and their interaction (Melzack & Casey, 1968; Moayedi & Davis, 2013). The sensory-discriminative dimension, the more popular conceptualization of pain, focuses on the tactile experience (Melzack & Casey, 1968). The affective-motivational determinant of pain is described as the part that defines the pain as unpleasant and motivates a person to respond (Auvray et al., 2010). The cognitive-evaluative dimension involves "higher central nervous system" processing such as the evaluation of the potential consequences from being exposed to the pain (Melzack & Casey, 1968).

The current investigation directly assessed the sensory-discriminative and affective-motivational dimension because: a) the primary interest of this study was the physiological aspect of pain found in the sensory-discriminative dimension; and b) the often neglected affective-motivation dimension adds another dimension of pain (Melzack & Casey, 1968). Pain intensity, perception of the painfulness of their exposure to the pain source (IASP, 2015), taps into the affective-motivational component. Pain tolerance, how long we stay in contact with a pain stimulus before we move away from the source (IASP, 2015), taps into the sensory-discriminative and affective-motivational dimensions. As participants come in contact with the pain stimulus and determine the unpleasantness of the stimulus, they are likely to remove their hand from the pain source. The cognitive-

evaluative dimension was not measured because the pain exposure was brief and did not have a lasting effect on participants.

Pain intensity. Pain intensity is the subjective reaction of the painfulness of a pain stimulus (Hasson & Arnetz, 2005; McCormack, Horne, & Sheather, 1988). Pain intensity refers to the individual's subjective interpretation of how painful the stimulus is; it does not refer to any increase in the actual pain stimulus. Pain intensity is important because it alerts the individual of the pain, which would then compel the individual to respond (Cervero, 2012). Awareness of one's pain intensity can prevent further injury by an individual avoiding a pain source or by consulting with a medical professional about one's pain symptoms. Pain intensity has been found to be positively related to pain diagnoses and pain medications prescribed for patients with mild to moderate dementia (Breland et al., 2015), and psychological distress in chronic pain patients (Severeijns, Vlaeyen, van den Hout, & Weber, 2001).

Pain intensity and psychological distress. Pain intensity and psychological distress are related. On the one hand, somatic complaints of physical pain can be part of an individual's presentation of psychological distress, such as insomnia and headaches being commonly associated with depression and anxiety (Drapeau, Marchand, & Beaulieu-Prévost, 2011). On the other hand, the perceived painfulness of one's physical pain can bring on the onset of depressive symptoms. For example, in chronic pain

patients who catastrophized about their pain, pain intensity and psychological distress were related (Severeijns et al., 2001).

Pain tolerance. Pain tolerance is also a response to physical pain. Pain tolerance is the *amount of time* an individual can voluntarily stay in contact with a pain-provoking stimulus (IASP, 2015). A higher pain tolerance was associated with being able to endure more pain (Freund et al., 2003) and less likely to use drugs to deal with pain (Compton, 1994). Especially in the chronic pain literature, high pain tolerance is viewed positively. Because individuals who suffer from chronic pain experience pain more frequently and also have the burden of taking medication to relieve pain symptoms (Cvijetic, Bobic, Grazio, Uremovic, Nemcic, & Krapac, 2014), research has focused on determining ways to increase pain tolerance as a more viable option (Liu, Wang, Chang, Chen, & Si, 2013). In essence, the ability to withstand pain for longer periods of time is shown to have benefits.

Pain tolerance and psychological distress. These benefits can also be seen in the relationship between pain tolerance and psychological distress. Empirical evidence has shown that pain tolerance and psychological distress were negatively related (Edens & Gil, 1995; Levine, Krass, & Padawer, 1993; Zelman, Howland, Nichols, & Cleeland, 1991). For example, participants in the depressed mood condition (participants were instructed to read depressed statements) had significantly lower pain tolerance than those in the elative mood condition (participants were instructed to read elative statements)

(Edens & Gil, 1995). In other words, experiencing psychological distress such as depressed mood (Edens & Gil, 1995) lowered pain tolerance.

Pain tolerance and pain intensity. Pain intensity and pain tolerance have been consistently found to be inversely related (i.e., Franklin, Hessel, & Prinstein, 2011; Liu et al., 2013). The more painful one perceives the pain, the less pain tolerance one is likely to have. Correlations between pain tolerance and pain intensity were statistically significant at the threshold point ($r = -.46$, $p < .001$) and at the tolerance point ($r = -.42$, $p < .001$) (Franklin et al., 2011). However, pain intensity and pain tolerance are also distinct because pain tolerance had an indirect effect between painful experiences and capability of suicide while pain intensity did not (Franklin et al., 2011).

Pain tolerance, pain intensity, and willingness to see a counselor. Studies have shown that those who experience pain, reporting high pain intensity, have a greater likelihood of utilizing *medical* services (Tsao, Glover, Bursch, Ifekwunigwe, & Zeltzer, 2002; Wolfe et al., 1995). Since pain intensity and pain tolerance are inversely related, it might also be the case that lower pain tolerance is associated with greater use of medical services. Because individuals, particularly, ethnic minority individuals, access mental health services through their initial visit to the medical doctor (Vogel et al., 2007), I predicted that lower pain tolerance and higher pain intensity would predict more willingness to see a counselor because they are more likely to access counseling services through their medical providers.

The Negative Effects of Pain Tolerance and Pain Intensity Explored

Prior studies have focused on the positive effects of increasing pain tolerance and lowering pain intensity, particularly in the chronic pain literature (i.e., Liu et al., 2013).

For example, one experimental study looked at whether mindfulness and distraction techniques increased pain tolerance (Liu et al., 2013). Compared to a spontaneous condition (listened to music), the mindfulness (engaged in mindfulness meditation) and distraction intervention (focused on pleasant thoughts rather than the pain) increased participants' pain tolerance (Liu et al., 2013).

Yet, there has been a line of research leading to a different direction that explains the negative side of pain tolerance found in the suicidality literature (Franklin et al., 2011). Franklin et al. (2011) found that higher pain tolerance mediated the relationship between more painful and provocative events (e.g., a piercing or jumping from an elevated location; Bender et al., 2011) and a higher acquired capability of suicide (fearless attitude toward lethal self-injurious behaviors; Van Orden, Witte, Gordon, Bender, & Joiner, 2008). Individuals who report more painful events have a higher pain tolerance, and thus, have a higher capability for suicide. Therefore, contrasting Liu et al.'s (2013) study, higher pain tolerance was found to be a risk factor for suicidal individuals, especially those who engage in non-suicidal injurious behaviors (Franklin et al., 2011).

If higher pain tolerance mediates the relationship between painful events and capability of inducing pain on oneself, it is possible that higher pain tolerance may also play a role in the relationship between psychological distress and seeking help for one's psychological distress. This study will test whether Franklin et al.'s (2011) conceptual framework, including painful and provocative life events and acquired capability of suicide (risk of suicide attempts), can be generalized to different mental health-related behaviors. In Franklin et al.'s (2011) study, the outcome variable—the acquired

capability of suicide—is a significant risk factor for suicide attempts (Van Orden et al., 2008) reflecting a mental health-related behavior. In a similar way, willingness to seek counseling, a proxy for the actual behavior of seeking counseling (Kim & Park, 2009; Vogel & Wei, 2005), is a mental health outcome variable as well. The predictor variable in Franklin et al.'s (2011) study—painful and provocative life events—is indicative of one's mental health status; having more painful and provocative life events (Bender et al., 2011) has a negative cumulative effect on one's mental state, particularly, in increasing suicidality. Similarly, psychological distress can be conceptualized as having repeated exposure to painful psychological events, which can also be viewed as a mental health status indicator. This study will test an extension of Franklin et al.'s (2011) study in examining whether the mediation effect of pain tolerance holds when: a) the mental health outcome variable is changed from the acquired capability of suicide (risk of suicide attempts) to willingness to seek counseling; and b) the mental health status indicator is changed from painful and provocative life events to psychological distress.

Although pain intensity did not have an indirect effect between painful experiences and capability of suicide, pain intensity and pain tolerance were inversely related with moderate zero-order correlations, ranging from -.42 to -.46 (Franklin et al., 2011). Thus, given the importance of assessing the different dimensions of pain, especially in one's perception of painfulness (Melzack & Casey, 1968) and the novelty of

applying Franklin et al.'s (2010) conceptual framework to the psychological distress-willingness to seek counseling relationship, pain intensity was assessed in this study.

Study Purpose

This study explored whether pain tolerance and pain intensity moderated the positive relationship between psychological distress and willingness to see a counselor. This was based on part of Joiner's (2005) interpersonal-psychological theory that one's capability of suicide increases through repeated exposure to painful experiences, thereby increasing one's pain tolerance and fearlessness of death. This *habituation* effect may also influence one's willingness to seek help for their distress symptoms. If individuals develop a higher pain tolerance and are less fearful of death, then they may not perceive their symptoms as distressing and not seek help as a result. As individuals increase their pain tolerance through habituation (Joiner, 2005), their perceived need for lessening their physical distress symptoms may lessen. Since Asian Americans were found to exhibit somatic symptoms of psychological distress more than emotional symptoms (U.S. D.H.H.S., 2001), their coping mechanisms for their psychological distress symptoms may align with how they cope with their physical distress symptoms. Therefore, this study explored moderation to determine whether individuals with high psychological distress were less willing to seek help at high levels of pain tolerance and low levels of pain intensity.

Study Hypotheses

The overall goal of this study was to test whether pain tolerance and pain intensity mediated and moderated the relationship between individuals' psychological distress and

their willingness to seek help. Within those hypothesized models, the moderating effect of Asian American values on the relationship between psychological distress and willingness to see a counselor was also tested. Mediation occurs when a variable is how or why two variables are related (Baron & Kenny, 1986; Fairchild & MacKinnon, 2009). Moderation occurs when a predictor variable has an effect on a criterion variable at varying degrees depending on a moderator (Baron & Kenny, 1986); and tests whether the moderator changes the strength and/or direction of the relationship between a predictor and outcome variable (Edwards & Lambert, 2007).

Moderated Mediation

Pain Tolerance.

Hypothesis 1: Higher frequency of psychological distress will significantly predict less pain tolerance (path a_1).

Hypothesis 2. Higher pain tolerance will significantly predict less willingness to see a counselor (path b_1).

Hypothesis 3: Higher psychological distress will significantly predict more willingness to see a counselor (path c_1).

***Hypothesis 4*:** The indirect effect of pain tolerance (path c_1') will be statistically significant and the range of the confidence interval will not contain zero. Higher

psychological distress will predict lower pain tolerance, which in turn, will predict less willingness to see a counselor.

Hypothesis 5: Higher Asian American values will moderate the relationship between psychological distress and willingness to see a counselor.

Hypothesis 5a: High Asian American values will predict less willingness to see a counselor (path c_2').

Hypothesis 5b: Depending on the level of Asian American values, the positive relationship between higher psychological distress and willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path c_3'). At higher levels of adherence to Asian American values, higher psychological distress will predict lesser willingness to see a counselor. At lower levels of adherence to Asian American values, higher psychological distress will predict more willingness to see a counselor.

Pain Intensity.

Hypothesis 6: Higher frequency of psychological distress will significantly predict more pain intensity (path a_2).

Hypothesis 7: Higher pain intensity will significantly predict more willingness to see a counselor (path b_2).

Hypothesis 8: Higher psychological distress will significantly predict more willingness to see a counselor (path c_2) same as hypothesis 3.

Hypothesis 9: The indirect effect (path c_4') will be statistically significant and the range of the confidence interval will not contain zero. Higher psychological distress will

predict higher pain tolerance, which in turn, will predict more willingness to see a counselor.

Hypothesis 10: Similar to hypothesis 5, higher Asian American values will moderate the relationship between psychological distress and willingness to see a counselor in the moderated mediation model including pain intensity.

Hypothesis 10a: High Asian American values will predict less willingness to see a counselor (path c_5').

Hypothesis 10b: Depending on the level of Asian American values, the positive relationship between higher psychological distress and willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path c_6'). At higher levels of adherence to Asian American values, higher psychological distress will predict lesser willingness to see a counselor. At lower levels of adherence to Asian

American values, higher psychological distress will predict more willingness to see a counselor.

Moderation Hypotheses with Two Moderators

Pain Tolerance.

Hypothesis 11: Higher frequency of psychological distress will significantly predict more willingness to see a counselor (path d_1).

Hypothesis 12: Higher pain tolerance will significantly predict less willingness to see a counselor (path d_2).

Hypothesis 13: Higher Asian American values will predict less willingness to see a counselor (path d_3).

Hypothesis 14: Pain tolerance will moderate the positive relationship between psychological distress and willingness to see a counselor. Depending on the level of pain tolerance, the relationship between higher psychological distress and more willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path d_4). At one standard deviation above the mean of pain tolerance, the relationship of higher psychological distress on more willingness to see a counselor will be weaker than at the mean and one standard deviation below the mean.

Hypothesis 15: Higher Asian American values will moderate the relationship between psychological distress and willingness to see a counselor. Depending on the level of Asian American values, the positive relationship between higher psychological distress and willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path d_5). At higher levels of adherence to Asian American values, higher psychological distress will predict lesser willingness to see a

counselor. At lower levels of adherence to Asian American values, higher psychological distress will predict more willingness to see a counselor.

Pain Intensity.

Hypothesis 16: Higher frequency of psychological distress will significantly predict more willingness to see a counselor (path d_6).

Hypothesis 17: Higher pain intensity will significantly predict higher willingness to see a counselor (path d_7).

Hypothesis 18: Higher Asian American values will predict less willingness to see a counselor (path d_8).

Hypothesis 19: Pain intensity will moderate the positive relationship between psychological distress and willingness to see a counselor. Depending on the level of pain intensity, the relationship between higher psychological distress and more willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path d_9). At one standard deviation below the mean of pain intensity, the relationship of higher psychological distress on more willingness to see a counselor will be weaker than at the mean and one standard deviation above the mean.

Hypothesis 20: Higher Asian American values will moderate the relationship between psychological distress and willingness to see a counselor. Depending on the level of Asian American values, the positive relationship between higher psychological distress and willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path d_{10}). At higher levels of adherence to Asian American values, higher psychological distress will predict lesser willingness to see a

counselor. At lower levels of adherence to Asian American values, higher psychological distress will predict more willingness to see a counselor.

Chapter 2: Review of the Literature

There continues to exist a consistent problem of Asian American individuals utilizing psychological services more than the general population (Abe-Kim et al., 2007; Le Meyer, Zane, Cho, & Takeuchi, 2009; Sorkin et al., 2009; Sorkin et al., 2011; Sue, Cheng, Saad, & Chu, 2012; Takeuchi et al., 2007). This underutilization trend persists for Asian Americans who are in need of specific mental health services (Le Meyer et al., 2009; SAMHSA, 2013). Despite the extensive literature providing evidence that psychotherapy works (i.e., Wampold, 2010), several barriers impede this pathway such as adherence to Asian values (Kim & Omizo, 2003), stigma (Choi & Miller, 2014), and other cultural factors (i.e., Vogel et al., 2007).

This study took a novel approach in incorporating two physiological factors, pain tolerance and pain intensity, to the help-seeking literature. This study examined whether pain tolerance and pain intensity, impacted by adherence to Asian American values, act as a barrier to help-seeking behavior when in psychological distress. Previously viewed as a positive quality, especially in the chronic pain literature (i.e., Liu et al., 2010), pain tolerance was found to be a negative factor in suicidality (Franklin et al., 2011). This study expanded on this conceptualization of higher pain tolerance and lower pain intensity having a negative impact on the help-seeking process. More specifically, this study explored whether pain tolerance and pain intensity, impacted by adherence to Asian

American values, mediated and moderated the relationship between psychological distress and willingness to see a counselor.

Asian American Mental Health

As the fastest growing racial group in the United States from 2000 to 2010 (U.S. Census Bureau, 2010b), the Asian American population spans across the country with more than fifteen different ethnic groups (U.S. Census Bureau, 2010a). Epidemiological studies with nationally representative Asian American adult samples indicate that Asian Americans have lower rates of psychological distress compared to the general population (Barnes et al., 2008; SAMHSA, 2013). However, Asian Americans were less likely to utilize mental health services (i.e., specialty mental health care, primary care, and alternative care) as a whole and also specifically those who met the diagnostic criteria for a psychiatric disorder (Le Meyer et al., 2009). In individuals (12 years and older) who were in need of treatment for alcohol or illicit drug use, Asian American and Pacific Islander individuals (N = 30,000; 5.3%) were considerably less likely than those in other racial groups (N = 2.3 million; 10.4%) to use mental health resources (SAMHSA, 2013).

To understand this underutilization of psychological services by Asian American individuals, barriers to treatment that which reduce the likelihood of individuals to seek psychological treatment were explored. First, Asian cultural beliefs and values commonly found in the Asian American population in this study defined as Asian American values (Kim, Li, & Ng, 2005) may negatively influence help-seeking behaviors. These values are conceptualized as part of *enculturation*—"the process by which an individual learns the traditional content of a culture and assimilates its practices and

values" (Merriam-Webster online, n.d.)—adopted or retained from Asian cultures (Kim, Li, & Ng, 2005). Additionally, experiences of Asian American individuals as part of *acculturation*—the process through which a collective group of individuals change as a result of adjusting to a different culture (Berry, 1997)—were also explored.

Beliefs about the mind-body connection and pain itself were considered. Asian cultures tend to lessen the distinction between the mind and body (Chan, Ho, & Chow, 2002; Lin, 1996). Chan et al. (2002) aptly summarized the distinction between Western and Eastern conceptualizations of the mind-body connection in stating that Western culture make a more clear distinction between the mind and body while Eastern culture views them as "different aspects of the same reality, with the body serving as the root for the blossom of the mind" (p. 264, Chan et al., 2002). Regardless of whether physical or emotional, individuals influenced by Asian cultures may address their pain by seeking a medical professional (Chu, Hsieh, & Tokars, 2011; Chu & Sue, 2011) because there is such overlap between the mind and body. In other words, there may be no additional value in meeting with a mental health professional since there is an expectation that a medical provider will provide holistic care that addresses both the mind and body.

This overlap may also explain why Asian American individuals are more likely to exhibit more somatic symptoms than emotional ones for their psychological distress (Takeuchi et al., 1998). If the mind and body are viewed as one in the same, then identifying physical symptoms may be considered an adequate explanation that captures the mind and body together and more culturally appropriate. This may also explain why Asian Americans exhibited more somatic symptoms for their psychological distress (i.e.,

depression, anxiety) than White Americans (U.S. D.H.H.S., 2001). This supports the hypothesis that influences from Asian cultures, specifically the interconnectedness of the mind and body, affect *where* individuals seek treatment, primarily medical professionals, and how they perceive their distress differently from Western culture.

Another belief that can act as a barrier to psychological treatment is the view of pain in and of itself. In Asian cultures, pain may be viewed as an inevitable part of life (Dickson & Kim, 2003). This may lead Asian Americans to be more accepting of their pain, thereby enduring their pain longer without making remedial efforts. Healing comes from understanding the pain and making intentional efforts to balance one's mood in order to lessen the pain, rather than attempting to remove the pain (Chan et al., 2002).

In addition to conceptualizing the experience of pain differently, there are values that also support the notion that the tolerance of pain is a virtue. These values align with Asian cultural values commonly found in Asian American individuals: emotional self-control, humility, collectivism, and conformity to norms (Kim et al., 2005). Asian cultures' may emphasize *stoicism*, suppression of emotional expression or holding in expression of pain (Sandhu, 1999). This becomes even more salient in the presence of others, particularly among family members, whose opinions hold great importance in a collectivistic context. Similarly, the suppression of emotions (Nishimoto, 1988), self-control and deference (Kim, Li, & Ng, 2005; Chang & Myers, 1997) considered positive traits as opposed to assertiveness, which is often associated with Western values (Chang & Myers, 1997). Sacrificing one's needs or desires for the sake of others, especially those

who hold authority, can demonstrate one's humility and be viewed more positively by others (Kim et al., 2005).

This emphasis on the importance of family, as an integral part of oneself, a key component of *collectivism* (Triandis, Bontempo, Villareal, Asai, & Lucca, 1988), can also influence how individuals view physical and psychological problems. Rather than a personal issue, Asian American individuals may understand their physical and psychological distress as a family problem (Tung, 2014). This focus on others more than the individual may also compel individuals to conform to the expectations of the family or group (Triandis et al., 1988). If family members typically suppress their emotions and sacrifice for others, then individuals are more likely to also follow the norm of delaying treatment. Thus, focusing on others more than the individual and conforming to norms (Kim et al., 2005) may compel individuals to delay addressing their pain. For example, if an individual experiences a physical ailment, the individual may not want to burden other family members or cause them to worry and may delay seeking treatment for their ailment.

In addition to beliefs and values that may support the tolerance of pain in the Asian American population, there may also be experiential factors that affect pain tolerance. Higher pain tolerance may be related to Asian Americans' immigration or acculturative experiences. As Asian American individuals immigrated to the United States, in varying degrees, many experienced financial difficulties, violence, and racial discrimination (Gould, 1988). Some individuals who held white-collar positions in their countries of origin transitioned to blue-collar jobs in the United States (Gould, 1988;

Min, 1984). This causes strain because individuals who had esteem and respect no longer were perceived in these terms (Min, 1984). From Asian cultures that highly value group cohesion (Triandis et al., 1988), this status loss (Berry, 1997) can negatively impacts many Asian American families by: 1) hurting the pride of the fathers, who are seen as the primary holder of status for the family; 2) mothers, who might have not previously worked in their country of origin but now have to work in the United States (Rhee, 2009); and 3) children feel pressure to succeed academically to improve the family's status or have to help the family conduct business (e.g., work at a store; Min, 1984). In addition, the language barrier between parents and their children may create more strain on the family (e.g., Ahn, Kim, & Park, 2009). These factors disrupt essential support structures that were once valued in their country of origin but to a lesser degree in the United States. Another key factor in delaying pain tolerance may be a lack of health insurance, some Asian ethnic groups more than others. For example, four out of ten Korean American adults were uninsured (Barnes, Adams, & Powell-Griner, 2008). With the disruption of financial stability, individuals may be more likely to be uninsured, which would increase the likelihood that those who are sick do not seek medical help due to financial hardship. A combination of these circumstances may affect Asian American individuals' pain tolerance. As a result of prolonged exposure to pain in their immigration and/or acculturation experiences, similar to the habituation effect of repeated exposure to painful

and provocative experiences that are less culturally specific (Joiner, 2005), Asian Americans' pain tolerance may increase.

This may explain the tendency of Asian Americans to delay seeking psychological help until symptoms become more severe (Bui & Takeuchi, 1992; Shin, 2002). Shin (2002) found that Korean immigrants living in a major U.S. city first attempted to cope with their psychological distress in solitary ways, then sought help from family members, and then hesitantly used more formal services as a last resort (averaging 5.3 years from the onset of symptoms to the first contact with a mental health professional). Treatment delay was associated with higher levels of stigma and shame (Okazaki, 2000). In addition, using the National Latino and Asian American Study data between 2002 and 2003, a larger percentage of Asian Americans reported severe levels of mental health need compared to the general population which suggests that there may be a lag in detecting and treating mental health issues (Nguyen & Bornheimer, 2014). These trends, underutilizing and delaying treatment until symptoms are severe, point to a large number of individuals who are suffering but do not seek help. Thus, this study explored whether Asian American values moderated the relationship between psychological distress and willingness to see a counselor. More specifically, Asian American values were predicted to reduce the likelihood of seeking a counselor despite reported high levels of psychological distress levels.

Psychological Distress

Psychological distress, or mental distress, is a mental state in which an individual is having difficulty with emotional, behavioral, or interpersonal problems (Ridner, 2004).

Often times, psychological distress is identified when a one's typical mental state changes and negatively affects one's functioning and quality of life (Kim, Wellish, & Spillers, 2008; Middleton et al., 2014; Ridner, 2004). Classic visual portrayals of psychological distress are masterfully depicted in *The Scream* (Munch, 1895) and *Worn Out* (van Gogh, 1882). This is often, but not always, precipitated by a stressor such as the loss of a loved one (Winterling et al., 2010), a traumatic event (Petkus, King-Kallimanis, & Wetherell, 2009), or the onset of a medical condition (Middleton et al., 2014). Although there are several indicators of psychological distress, the more common symptoms are depression, anxiety, problems with behavioral control, and little positive affect (Derogatis, 1993; Veit & Ware, 1983). Depression and anxiety have commonly been assessed in the Asian American population (Barnes, Adams, & Powell-Griner, 2008; Chang, 2002; Okazaki, Liu, Longworth, & Minn, 2002; Sorkin, Nyugen, & Ngo-Metzger, 2011; Sorkin, Pham, & Ngo-Metzger, 2009). The main symptoms of depression are feeling down and hopeless, having low energy, being sad, crying, and/or being irritable (APA, 2013; Veit & Ware, 1983). Anxiety symptoms include excessive worrying, restlessness, muscle tension, and nervousness (APA, 2013; Veit & Ware, 1983).

Measuring psychological distress has been a useful tool for mental health and medical professionals in quantifying individuals' symptomatology to provide the best care in matching their needs with appropriate resources (Ridner, 2004). Self-report measures of psychological distress are efficient in obtaining screening results quickly in fast-paced environments such as hospital settings. Psychological distress measures have

also been used to indicate progress in treatment used in community centers nationwide (Lin et al., 2014). Measures commonly used to assess psychological distress are: the Hopkins Symptoms Checklist (Parloff, Kelman, & Frank, 1954), the Mental Health Inventory (Veit & Ware, 1983), the Patient Health Questionnaire - 9 (Kroenke & Spitzer, 2002), and the Symptoms Checklist 90-R (Derogatis, 1975, 1994). This study focused primarily on the symptoms associated with an individual's mood and/or feelings.

Although somatic symptoms are often found in psychological distress such as headaches, nausea, muscle aches, chest pain, and digestive problems (Drapeau, Marchand, & Beaulieu-Prévost, 2011; APA, 2013), these somatic symptoms were not assessed in this study to prevent overlap with the assessment of physical pain. Indeed, emotional pain and physical pain share similarities (MacDonald & Leary, 2005) but they have also been found to be different (Woo et al., 2014). By minimizing the overlap between emotional pain and physical pain, the researcher could explore the differences in how emotional pain and physical pain relate to other factors; particularly, how individuals may deal with physical pain and emotional pain differently. Additionally, Asian American individuals manifest somatic symptoms of psychological distress (Grover & Ghosh, 2014; Lin & Cheung, 1999). Lin and Cheung (1999) argued that this trend has been found because Asian American individuals selectively present what they deem appropriate to discuss, somatic rather than emotional symptoms, in a healthcare setting. Lin and Cheung also stated that this report of more somatic than emotional symptoms is not reflective of a lack of awareness of their emotions because when

explicitly asked, Asian Americans have been found to identify emotional distress as well as their somatic complaints.

Because psychological distress is largely a subjective experience, determined by how an individual feels, the onus is on the individual to recognize or seek assistance in determining whether one is in distress. Unless there is imminent risk of harm to self or others (i.e., if a person is suicidal or being abused and/or neglected), addressing one's psychological concerns is not mandated. In addition, people cope with their psychological distress in various ways. Some individuals wait for their symptoms to pass (i.e., Nguyen & Bornheimer, 2014), while others take medication to reduce their symptoms (i.e., Stirratt et al., 2015). Another way of addressing their psychological distress is seeking counseling.

Psychological distress and willingness to see a counselor. Psychological services have been created to help individuals work through psychological distress and improve their lives (American Counseling Association, 2015; American Psychological Association, 2015). Individuals realize that they are struggling emotionally, behaviorally, and/or interpersonally and seek a mental health professional to address their psychological concerns. Once individuals recognize that they are in distress, they are more likely to seek counseling (Nguyen & Bornheimer, 2014). This process of seeking mental health services for psychological distress has been extensively examined in the empirical literature determined by whether individuals sought counseling or not (i.e., Hom, Stanley, & Joiner, 2015; Nguyen-Feng, Beydoun, McShane, & Blando, 2015; Ware et al., 1984). For example, mental health status, how one is doing emotionally and

psychologically, was found to be a significant predictor of outpatient mental health services utilization (Ware et al., 1984).

Another approach to understanding help-seeking behavior has been to assess one's willingness to see a counselor (Kim & Omizo, 2003). Higher psychological distress was significantly related to more willingness to seek counseling (Cepeda-Benito & Short, 1999; Vogel & Wei, 2005). Cepeda-Benito and Short (1999) found an intercorrelation of .23 between psychological distress, measured by the Hopkins Symptom Checklist-21 (Parloff et al., 1954), and willingness to see a counselor, measured by the Intention of Seeking Counseling Inventory (the original version of the Willingness to See a Counselor scale; Cash et al., 1975). When the reasons for seeking counseling were broken down into three subscales (psychological and interpersonal concerns, academic concerns, and drug concerns), psychological distress (general feelings of distress) significantly predicted perceived likelihood to seek counseling for psychological and interpersonal concerns (β = 0.20, $p < .0001$) (Cepeda-Benito & Short, 1999). Vogel and Wei (2005) found a similar relationship between psychological distress (general feelings of distress) and perceived likelihood to seek counseling for psychological and interpersonal concerns with an intercorrelation of .32. This positive relationship was also found in an Asian American sample (Kim & Zane, 2015). All in all, these results support the notion that psychological services are intended for individuals experiencing psychological distress.

Willingness to See a Counselor

To examine the process of individuals seeking help for their emotional and behavioral problems, researchers have employed two approaches. In the first method,

individuals were asked whether or not they sought psychological services (i.e., Hom, Stanley, & Joiner, 2015; Nguyen-Feng, Beydoun, McShane, & Blando, 2015; Ware et al., 1984). In the second method, prior studies have used a proxy for the actual behavior based on the theory of reasoned action (Kim & Park, 2009; Vogel et al., 2005). The theory of reasoned action (Fishbein & Ajzen, 1975) states that an individual's intention to engage in a particular behavior is the strongest predictor of actually engaging in that behavior. Using a proxy can help predict and provide a more nuanced understanding of actual help-seeking behavior, shown in Huh (2014).

Researchers have even argued that behavioral intention is synonymous with willingness (Albarracin et al., 2001; Kim & Park, 2009). In this study's case, willingness was used because Asian American individuals have a tendency to underutilize mental health services (Masuda et al., 2009). Capturing individuals' willingness provides more flexibility in gauging individuals' hypothetical responses to seeking counseling for psychological problems. The word willingness by itself means a "cheerful readiness" or an inclination to act on a particular behavior (Merriam Webster dictionary, n.d.). In addition, willingness to see a counselor is an accurate description of what is being assessed as opposed to the word "intent". The Intention to Seek Counseling measure, on the other hand, assessed one's likelihood to seek counseling for psychological problems, which seems more similar to the definition of "willingness" than to the true definition of "intent".

Willingness to see a counselor (Gim et al., 1990) includes a thorough list of concerns with a total of 24 problems (i.e., depression, general anxiety). The original

source of the WSC came from the Personal Problems Inventory (synonymous with Intentions to Seek Counseling Inventory) (PPI; Cash et al., 1975). The PPI consists of fifteen problems that are relevant to college student populations. The list of problems include general anxiety, alcohol problem, shyness, sexual functioning, depression, conflicts with parents, speech anxiety, dating difficulties, career choice, insomnia, drug addiction, inferiority feelings, test anxiety, difficulty making friends, and trouble studying (Cash et al., 1975). Ponce and Atkinson (1989) then revised the PPI to include five problems (adjustment to college, academic performance, financial concerns, feelings of loneliness or isolation, and feelings of alienation or not belonging) that they believed were culturally relevant to Hispanic college students. Gim et al. (1990) then modified Ponce and Atkinson's (1989) version to include four more problems (ethnic identity confusion, general health problems, ethnic or racial discrimination, and roommate problems) that were found to be relevant to Asian American college students in a pilot study. Gim et al.'s (1990) modified version has been used to measure Asian American individuals' willingness to see a counselor.

Specific to the Asian American population, studies have shown that unique factors are negatively associated with their willingness to seek counseling. Kim and Omizo (2003) found an inverse relationship between adherence to Asian values and willingness to see a counselor, after controlling for age, generation status, and previous counseling experience. This inverse relationship was also found through an indirect pathway through different types of stigma (public stigma, stigma by close others, and self-stigma (Choi & Miller, 2014). Additionally, Asian Americans were more willing to

seek counseling for academic concerns than personal problems (Atkinson, Lowe, & Matthews, 1995; Kim & Omizo, 2003). In a more recent study, Kim and Kendall (2015) found that higher emotional self-control (considered a more specific Asian value) significantly predicted less willingness to see a counselor in Asian American college students through attitudes toward seeking professional psychological help; which was then moderated by two separate etiological beliefs about mental illness, that mental illness is caused by biological and spiritual reasons. Overall, there is a burgeoning body of research that illustrates psychological and cultural factors that might explain why Asian American individuals are not seeking counseling for their psychological problems.

Pain Tolerance and Pain Intensity as Barriers to Psychological Service Utilization

Incorporating pain components – specifically, pain tolerance and pain intensity– into the research on help-seeking behaviors broadened the current understanding of why individuals do not use psychological services even when they are in distress. This novel approach took into consideration a physiological component into a relationship that is often explained by psychological factors such as stigma (Choi & Miller, 2014) and Asian values (Kim, Li, & Ng, 2005). Through the application of Franklin et al.'s (2011) work on pain tolerance and suicidality, I explored the impact of pain tolerance and pain intensity on help-seeking behaviors. Most of the empirical literature on pain tolerance focused on the positive effects of higher pain tolerance, especially in the chronic pain literature (Liu et al., 2013). Franklin et al. (2011) broke from this trend in examining the negative effect of higher pain tolerance in the context of suicidality. Higher pain tolerance mediated the relationship between more painful and provocative events (e.g., a

piercing or jumping from an elevated location) and a higher acquired capability of suicide (fearless attitude toward lethal self-injurious behaviors) (Franklin et al., 2011). Thus, higher pain tolerance was found to be a significant risk factor for suicidal individuals, particularly those with a history of non-suicidal self-injurious behaviors (Franklin et al., 2011).

This study expanded on Franklin et al.'s (2011) study by exploring whether conceptual framework using pain tolerance and pain intensity as mediators can be generalized to different mental health behaviors. In place of the outcome variable, the acquired capability of suicide (Franklin et al., 2011), willingness to see a counseling was operationalized. Having an acquired capability of suicide is a significant risk factor for suicide attempts (Van Orden, Witte, Gordon, Bender, & Joiner, 2008) and reflects a mental health-related behavior. Similarly, willingness to seek counseling, a proxy for actually seeking counseling (Kim & Park, 2009; Vogel & Wei, 2005) reflects a mental health-related behavior. Additionally, painful and provocative life events, the predictor variable (Franklin et al., 2011), represents the negative cumulative effect that having more painful and provocative life events (Bender et al., 2011) has on one's mental state, particularly in increasing suicidality. Similarly, experiencing psychological distress can also be viewed as a mental health status indicator in which repeated exposure to painful psychological events can negatively affect one's mental state. This study explored whether the mediation of pain tolerance holds when: a) the mental health outcome variable is changed from the acquired capability of suicide (risk of suicide attempts) to

willingness to seek counseling; and b) the mental health status indicator is changed from painful and provocative life events to psychological distress.

Although pain intensity was not found to be statistically significant mediator (Franklin et al., 2011), pain intensity was included in this study as a potential mediator for two reasons. First, it was recommended that the different dimensions of pain, especially one's perception of the painfulness of the pain stimulus be assessed (Melzack & Casey, 1968). Therefore, pain intensity is part of the pain experience that provides valuable information in this study. Second, given the novelty in applying Franklin et al.'s (2011) conceptual framework to the psychological distress-willingness to seek counseling relationship, it was hypothesized that pain intensity may act similar to pain tolerance as a mediator in this study since pain intensity and pain tolerance were found to be significantly related (r = -.42, -.46)(Franklin et al., 2011).

This study also explored whether pain tolerance and pain intensity act as moderators on the positive relationship between psychological distress and willingness to see a counselor. Based on the premise that individuals' pain tolerance and fearlessness of death increases through repeated exposure to painful and provocative events called the *habituation* effect (Joiner, 2005), individuals' pain tolerance may also lessen one's willingness to seek help for their distress symptoms. Individuals may lack the awareness that their symptoms are indicative of distress. More specifically, because Asian Americans were found to exhibit somatic symptoms of psychological distress more than emotional symptoms (U.S. D.H.H.S., 2001), coping with their physical pain may shed light on how individuals cope with their psychological distress. The current investigation examined whether higher pain tolerance and lower pain intensity lessened the strength of

the positive relationship between psychological distress and one's willingness to seek counseling.

Pain

Pain, what it is and how it manifests, has been widely discussed for centuries because of not only its universal nature but also its puzzling quality. Throughout history, pain has been viewed as "a particular kind of sensation, probably conveyed by specialized nerve fibres, and recognizable by the patient as that kind of sensations whether he dislikes it or not" (Lewis, 1940, p. 78). It taps into how sensory processes interpret stimulation primarily by touch. In addition, pain has been viewed as a negative experience in that the being without pain was considered the pinnacle of pleasure and happiness, stemming back to Epicurean thought (Furley, 1999). Other schools of thought, such as stoicism and Buddhism, held a more tolerant view of pain, emphasizing its inevitability and opportunity for growth or building character (Tung, 2014).

In terms of where pain is located in the body, the notion that pain perception could be found in the brain, which was separate from the sensory experience, could be traced back to Descartes in the seventeenth century (Moayedi & Davis, 2013). Over time, this concept has developed into a general consensus that pain is located at the point of contact, where the potential sensory damage occurred and the brain is signaled to interpret the stimulation. A more contemporary definition of pain is "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" (IASP, 2015). The four main theories of pain: the specificity, pattern, intensity theory, and gate control theories of pain (Moayedi & Davis,

2013). These four theories were argued to be flawed with one theory standing out above the rest (Moayedi & Davis, 2013).

Pain theories. The specificity theory of pain developed over time but was experimentally tested in the nineteenth century (Moayedi & Davis, 2013). The main aspect of this theory is that specific modalities (i.e., touch and pain) are encoded separately by receptors and associated sensory fibers, which lead to transmission along different pathways (Moayedi & Davis, 2013). The intensity theory of pain also began centuries earlier but began being developing in the late eighteenth century (Moayedi & Davis, 2013). In this theory, pain is an emotional response produced when one experiences a stimulus that is stronger than usual, resulting in a summation effect in which repeated exposure to a stimuli can result in higher pain perception (Moayedi & Davis, 2013). Developed in the twentieth century, the pattern theory of pain explained that pain was encoded by a specific pattern of neural firing that determined the stimulus type and intensity (Moayedi & Davis, 2013).

Gate control theory of pain. The most widely accepted pain theory is the gate control theory of pain (Melzack & Wall, 1965). Melzack and Wall (1965) argued that pain fibers (*nociceptors*) and touch fibers synapse in two different regions within the dorsal horn of the spinal cord—cells in the substantia gelatinosa and the "transmission cells". The substantia gelatinosa, which is called the "gate" of the spinal cord, modulates the sensory information from the primary afferent neurons to the transmission cells in the spinal cord (Melzack & Wall, 1965). This gate's activity is controlled by large and small fibers; the large fibers close the gate while the small fibers open the gate (Melzack &

Wall, 1965). Another feature of this gating mechanism is the ability to filter whether a sensation is considered painful or not (Moayedi & Davis, 2013). For example, when an individual is hit with blunt force to an area, the small fibers are activated; however, when that same area is massaged directly afterwards, the large fibers inhibit the gate and the individual feels relief instead (Moayedi & Davis, 2013).

Melzack and Casey (1968) further expanded on the gate control theory of pain by describing key features of pain in its complexity and multidimensionality. Unlike its precursors that viewed pain as a linear process in which an individual experiences a pain sensation and then reacts with an affective and cognitive response, Melzack and Casey (1968) argued that pain is an interactional process that includes three dimensions: the sensory-discriminative, affective-motivational, and cognitive-evaluative. The sensory-discriminative dimension includes the intensity, location, quality, and duration of the pain exposure (Melzack & Casey, 1968).The affective-motivational dimension taps into the unpleasantness or the reactionary flight response (Melzack & Casey, 1968). The cognitive-evaluative dimension includes the "higher central nervous system activities" (Melzack & Casey, 1968, p. 432) that includes the appraisal, cultural values, context, and cognitive state of the individual experiencing pain (Melzack & Casey, 1968). This study focused on the sensory-discriminative and affective-motivational dimensions. Because the exposure to the pain source was brief in this study and unlikely to have a lasting effect on participants, the cognitive-evaluative dimension was not assessed. Assessing pain tolerance, how long we stay in contact with a pain stimulus before we move away from the source (IASP, 2015), tapped into the sensory-discriminative dimension. Pain

intensity, the rating of the painfulness of the pain stimulus (IASP, 2015), tapped into the affective-motivational component.

The gate control theory of pain argued that emotions and thoughts influence pain perception—how one feels or thinks about the pain—which impacts the way individuals deal with pain (Melzack & Wall, 1965). As Crombez, Baeyens, and Eelen (1994) poignantly stated, the fear of pain is more disabling than the actual pain itself. Therefore, assessing one's emotions and thoughts about the pain is important as well. Pain studies have measured pain perception by asking participants to rate the intensity of the pain on Likert scales often ranging from one to ten (i.e., McGill pain measure).

The two main fatal flaws of the specificity, pattern, and intensity theories are the limitations on depth and intensity of pain (Moayedi & Davis, 2013). As for depth, specificity, pattern, and intensity theories focused on cutaneous pain but did not account for deep-tissue, visceral, or muscular pain (Moayedi & Davis, 2013). These three theories also focused on acute pain and did not explain chronic pain that develops over time (Moayedi & Davis, 2013). While the gate control theory is not without its limitations, it proved to be superior to competing theories because of its ability to apply this theory to deep-tissue and acute pain in a way that the other three theories did not (Moayedi & Davis, 2013). GCT's flaws include: an oversimplification and inaccurate descriptions of the composition of the spinal cord, location of the large fiber inhibition site, and the modulatory system (Moayedi & Davis, 2013). However, the gate control theory of pain created a framework that took parts from the specificity and pattern theories that provided

physiological evidence and brought them together to form one integrated coherent theory (Moayedi & Davis, 2013).

Interconnectedness of pain. The multidimensionality of pain (Melzack & Casey, 1968) reinforces the concept that the mind and body are connected. Ramachandran (Doidge, 2007), a prominent neurologist, treated patients who had pain in their phantom limbs (they had a body part amputated but still felt the pain in that area) and found that tricking the visual perception of patients helped alleviate their pain symptoms. This opened up dialogue about the uncertainty of whether the mind and body are distinct. Because of the interconnectedness of physical and emotional pain found in the three dimensions in Melzack and Wall's (1968) theory, there has been debate as to whether physical and emotional pain are, indeed, the same, at least how they share similar neural processing (e.g., MacDonald & Leary, 2005). This may explain why individuals interpret their pain symptoms differently. For example, individuals over the age of 65 were more likely to view their symptoms as a physical problem rather than a mental health problem than other age groups (Hassin & Link, 1988). Teasing out pain into its different dimensions may prove to be a difficult task, if not impossible, because of their similarities.

Distinctness of physical and emotional pain. More recently, Woo, Wager, and colleagues have used the brain scanning method of the fMRI to determine whether physical pain is different from other types of pain (Wager et al., 2013; Woo et al., 2014). Woo et al. (2014) found support for their theory that physical pain (administered by heat) was different from emotional pain (social rejection evidenced by activating differential

fMRI patterns in participants' brains. This novel finding not only supported Melzack and Casey's (1968) argument that the different aspects of pain interact with each other, but also through providing evidence of different concentrations of neural activity in different locations in the brain when experiencing emotional or physical pain (Woo et al., 2014), demonstrated that physical and emotional pain are different.

Pain Intensity

Pain intensity is the subjective perception of the painfulness of a pain stimulus (Hasson & Arnetz, 2005; McCormack, Horne, & Sheather, 1988). For example, if an individual is injured, the individual determines how painful they think and feel about the pain associated with the injury. Pain intensity deals with the reaction of the individual who is experiencing the pain; it is not in reference to the quantity of the pain stimulus. The referent pain can be a cutaneous or deep tissue pain and refers to a physical pain, and not psychological pain. Pain intensity can vary depending on the individual. For example, one may think and feel that a deep tissue massage is painful and report a higher pain intensity while another may find the same massage soothing and report lower pain intensity.

Assessing pain intensity is essential in understanding the full pain experience because an individual must gauge how unpleasant the pain is in order to move away from the source (Melzack & Casey, 1968). Pain does not only tap into the sensory-discriminative dimension in which participants experience a sensation when their hand comes in contact with the ice water; it also involves the affective-motivational dimension in which participants assess the level of unpleasantness of the ice water which determines

their reaction of removing their hand when the painfulness of the ice water exposure becomes apparent.

Pain intensity is valuable because it helps individuals recognize their pain (Cervero, 2012). This can lead to positive outcomes especially if the pain intensity felt is high. The main interest in pain intensity is determining one's response to a pain stimulus. Pain intensity is most often assessed in medical settings where patients inform their medical provider of their level of pain. This subjective indicator allows the medical provider to monitor changes or assess what treatment to provide. If an individual indicates little to no pain, then the patient should expect to receive minimal aid. However, if a patient reports high levels of pain, then the medical doctor might be more inclined to find ways to relieve the pain by prescribing medication or referring the patient to a specialist. Higher pain intensity has been found to correlate with being diagnosed with a pain condition and being prescribed pain medication in patients with mild to moderate dementia (Breland et al., 2015).

Pain intensity and psychological distress. The relationship between pain intensity and psychological distress is complex because they often overlap. Individuals who are in distress can also experience physical pain such as muscle aches and digestive problems (Drapeau et al., 2011). Vice versa, individuals in pain might experience changes in mood because of their pain. For example, individuals who have chronic pain may also be depressed because of being frustrated with the persistence of their physical pain. One study found that pain intensity and psychological distress were significantly

related in chronic pain patients who catastrophized about their pain (Severeijns, Vlaeyen, van den Hout, & Weber, 2001).

Pain Tolerance

One construct that is related to pain intensity is pain tolerance. While pain intensity provides information on how an individual thinks and feels about pain, pain tolerance measures how much time an individual can physically tolerate the pain, which focuses on the sensory aspect (Melzack & Wall, 1965). Pain tolerance is often associated with being "tough". Articles on pain tolerance are riddled with photos of athletes with muscular physiques engaging in physical activity. Most often in reference to physical pain, pain tolerance varies for each individual, with some having a higher tolerance for pain than others. It can also vary depending on the type of pain; for example, an individual may be more tolerant of pain from being exposed to ice than heat. Sex differences in pain tolerance have been shown with males having higher pain tolerance than women (Woodrow, Friedman, Siegelaub, & Collen, 1972). In another study, Chan, Hamamur, Janschewitz (2013) found different physical pain sensitivity depending on differing rates of acculturation; first- generation Asian American individuals showed lower pain tolerance and higher pain intensity than second-generation Asian Americans and European Americans. Asian Americans who were in the acculturative process, adjusting to the American environment, were found to have higher pain responses which

Chan et al. (2013) argued was a response to adapting to a environment or accumulated stress from the adjustment.

The subjective experience, as opposed to the level of stimuli (degree of pain), is viewed as more important in understanding pain tolerance (IASP, 2015). Therefore, the more common definition focuses on how much *time* that an individual voluntarily stays in direct contact with a pain stimulus (von Baeyer, Piira, Chambers, Trapanotto, & Zeltzer, 2005; Franklin et al., 2011) rather than how much severity one can tolerate. Pain tolerance is differentiated from pain threshold. Pain threshold is the point at which an individual first recognizes pain after being exposed to an aversive stimulus, or in other words, the lowest intensity that is considered painful (IASP, 2015). Studies have shown that pain threshold and pain tolerance levels can differ in individuals. For example, endurance athletes (ultra-marathon runners) were found to have a significantly higher pain tolerance but no significant difference in pain threshold compared to individuals who did not run marathons (Freund et al., 2013). Therefore, how long participants can tolerate the pain is of more significance than when they begin feeling pain.

Overall, having higher pain tolerance is viewed positively. Individuals who have a higher pain tolerance were found to endure more pain (Freund et al., 2003) and be less likely to use drugs to deal with pain (Compton, 1994). This positive view of pain tolerance seems to be most salient in the chronic pain literature. Individuals suffering from chronic pain deal with pain on a regular basis and are more likely to use medication for their pain (Cvijetic, Bobic, Grazio, Uremovic, Nemcic, & Krapac, 2014). Researchers have made concerted efforts to find alternative ways to lessen pain by increasing pain

tolerance (i.e., Liu et al., 2013). Liu et al. (2013) found that mindfulness meditation and cognitive distraction techniques increased pain tolerance. These results show how pain tolerance is malleable and can change over time. Consistent with the findings that indicate that increasing pain tolerance reduces pain, pain tolerance has been negatively correlated with pain measured by the Borg CR10 Numeric Pain Rating Scale (Borg, 1998), the Electronic Visual Analog Scale (Hasson & Arnetz, 2005), and the Present Pain Index (Melzack 1987). The higher their pain tolerance, participants reported less pain (Lee, Watson, & Frey Law, 2010).

Generally, pain tolerance has been assessed by measuring physical pain in clinical studies (Franklin et al., 2011; Mitchell, MacDonald, & Brodie, 2004), using ice (i.e., Franklin et al., 2011), mechanical pressure (i.e., Maquet et al., 2004; Jespersen et al., 2013), a tourniquet to interrupt blood circulation (Sternbach, 1983), heat (Kenshalo et al., 1989), or electrical stimulation (McGrath et al., 1983) (review of each method in Edens & Gil, 1995). All these methods have been used to assess participants' reaction to simulated pain (Edens & Gil, 1995).

Measuring pain. Using ice water as a pain stimulus has been widely used to measure pain tolerance in the cold pressor task. In the cold pressor task, pain tolerance is the "duration of immersion (sec) from the time the hand is placed in the water to the time it is voluntarily withdrawn" (von Baeyer, Piira, Chambers, Trapanotto, & Zeltzer, 2005, p. 222). This method of assessing the time a person stays in contact with a pain stimulus has been used in several research studies (i.e., Franklin et al., 2011; Mitchell, MacDonald, & Brodie, 2004). The use of the cold pressor task can be traced back to the

1940s when Wolf and Hardy (1943) used cold water as a pain stimulus, in which direct exposure to cold water was viewed as a "physiologic stressor, without any particular focus on pain" (von Baeyer et al., 2005, p. 219). Over the years, researchers have gained a more refined understanding of how pain travels in the body through small, unmyelinated C fibers (Walsh et al., 1989) when exposed to cold temperatures (von Baeyer et al., 2005).

Ethical considerations. Although inducing pain by exposing an individual to ice water can be viewed negatively because of ethical concerns of *nonmaleficence*, doing no harm, (American Psychological Association, 2010), the cold pressor task has been argued to have advantages when assessing pain tolerance (von Baeyer et al., 2005). Exposure to ice mimics the effects of chronic physical conditions that allows researchers to understand how participants respond to those chronic physical conditions (Mitchell et al., 2004). In addition, the use of ice water provide researchers the ability to isolate the assessment of pain without the impact of other confounding factors that may been seen in painful medical procedures (von Baeyer et al., 2005). This cold pressor task also allows investigators to have more precision in manipulating the details of the pain stimulus, such as the location to place the pain stimulus on the body that may not be possible with clinical pain (von Baeyer et al., 2005). Additionally, the empirical evidence using the cold pressor task can translate to practical applications in chronic pain management (von Baeyer et al., 2005). Lastly, participants who are less likely to engage in clinical research may be more willing to participate because of the novelty and interesting nature of the cold pressor task (LeBaron et al., 1989). Furthermore, Birnie et al. (2010) interviewed all

the stakeholders involved in conducting research using the cold pressor task with children and found a consensus among the child participants, the children's parents, and researchers that the cold pressor task produced minimal risk (short duration, being exclusively voluntary, and potential benefits outweighing the cost).

Because of the versatility of assessing pain tolerance in a simulated or natural setting, one concern that has surfaced is whether the experimental pain (the simulated pain in research) adequately mimicked clinical pain (pain that naturally occurs outside of research) (Edens & Gil, 1995). This is of particular importance because the research on pain tolerance began with the goal of lessening the negative effects of clinical pain through exploring how participants deal with experimental pain. Therefore, determining the validity of pain is an important consideration in applying the research findings on pain tolerance. Attempts to find parallels between clinical and experimental pain were made (Edens & Gil, 1995; Fuller & Robinson, 1995; Gil et al., 1995). For example, Fuller and Robinson (1995) used a pain stimulus similar to the specific type of pain they were interested in simulating which was back pain. Gil et al. (1995) also found similarities in the features of experimental and clinical pain. Therefore, the use of simulated pain is widely accepted as a valid way of measuring pain tolerance.

Pain tolerance and psychological distress. Resting on the basis that physical and emotional pain are related, psychological distress and pain tolerance have been found to be related (Edens & Gil, 1995; Levine, Krass, & Padawer, 1993; Zelman, Howland, Nichols, & Cleeland, 1991). Typically, this relationship has been found with specific types of psychological distress such as depression and anxiety. Zelman et al. (1991)

found that nonclinical participants who were induced with depressed mood by reading depressed statements had significantly lower pain tolerance than those who were in the elative mood condition who read elative statements. Levine et al. (1993) found a similar effect with induced anxiety and found that students who were given feedback that they had failed a given task reported an increase in reporting pain during the cold pressor task. One interesting finding found that pain tolerance was significantly inversely related to perceived discrimination for African American participants but not for non-Hispanic White participants (Goodin et al., 2013). Overall, empirical evidence has shown an inverse relationship between psychological distress and pain tolerance. This finding supports my hypothesis that the way we manage and perceive physical pain, in terms of pain tolerance and pain intensity, may explain how we deal with psychological distress—whether we are willing to seek counseling for psychological problems.

Pain tolerance and pain intensity. This dual pairing has been found consistently in studies to be inversely related (Franklin et al., 2011; Liu et al., 2013). Those who have a higher pain tolerance reported having lower pain intensity, the pain stimulus feeling less painful. Empirical support is found in Franklin et al.'s (2011) study such that pain tolerance was significantly negatively related to pain intensity at the threshold point (r = -.46, p < .001) and at the tolerance point (r = -.42, p < .001). This supports Melzack and Casey's (1968) assertion that pain tolerance and pain intensity relate to one another. However, pain intensity and pain tolerance acted differently in Franklin et al.'s (2011) study in that pain tolerance had an indirect effect on the relationship between painful

events and capability of suicide, whereas pain intensity did not. Therefore, pain intensity and pain tolerance are related yet distinct.

Pain tolerance, pain intensity, and willingness to see a counselor. Although studies have not directly tested the relationship between pain tolerance, pain intensity, and willingness to see a counselor, it was hypothesized that lower pain tolerance and higher pain intensity would predict more willingness to see a counselor. The rationale behind this was that those with higher pain intensity, experiencing more pain, are more likely to use medical services (Wolfe et al., 1995). Children who reported higher pain ratings had more visits to the nurse's office (Tsao, Glover, Bursch, Ifekwunigwe, & Zeltzer, 2002). If pain intensity is reported to be higher, then by default, pain tolerance would be lower. Individuals have reported that they accessed mental health services through medical services (Vogel et al., 2007). More specifically, Asian American individuals with suicidal ideation or have had suicide attempts have a lower likelihood to contact other professionals except medical professionals (Chu, Hsieh, & Tokars, 2011). Therefore, if individuals are experiencing a great deal of pain and have a low pain tolerance, they might have more willing to seek counseling assuming that they are more likely to have sought medical services for their pain.

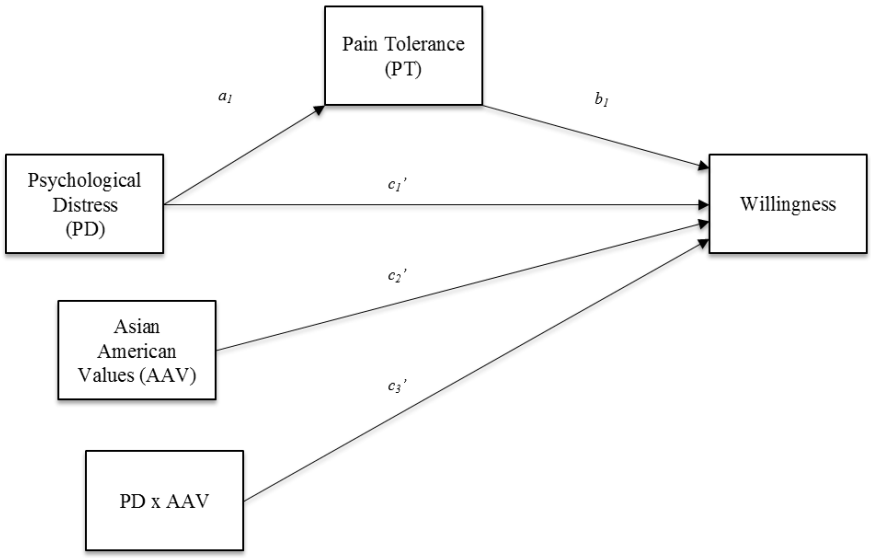


Figure 1. Predicted moderated mediation model with pain tolerance.

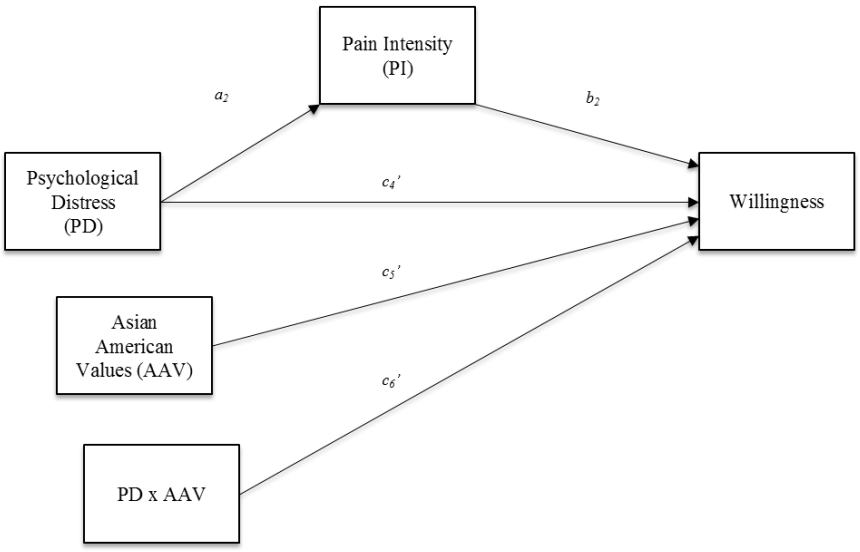


Figure 2. Predicted moderated mediation model with pain intensity.

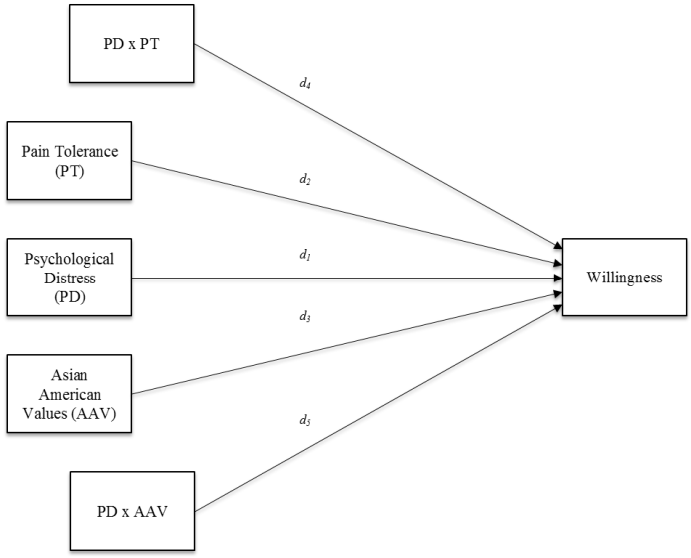


Figure 3. Predicted moderation model with pain tolerance.

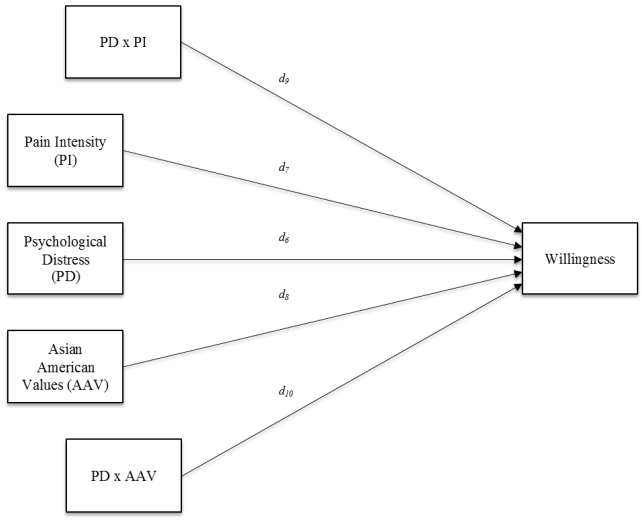


Figure 4. Predicted moderation model with pain intensity.

Chapter 3: Statement of the Problem

Moderated Mediation Hypotheses

Pain Tolerance.

1. Higher frequency of psychological distress will significantly predict less pain tolerance (path a_1). This hypothesis was based on Zelman, Howland, Nichols, and Cleeland's (1991) finding that those induced with depressed mood (proxy to psychological distress) had lower pain tolerance than elative mood (no psychological distress condition).
2. Higher pain tolerance will significantly predict less willingness to see a counselor (path b_1). This hypothesis was based on the premise that since pain intensity and pain intensity are inversely related (i.e., Franklin et al., 2011), those with higher pain intensity were more likely to seek medical services (Wolfe et al., 1995), where mental health services were accessed (Vogel et al., 2007).
3. Higher psychological distress will significantly predict more willingness to see a counselor (path c_1). This hypothesis was based on Cepeda-Benito and Short's (1999) and Vogel and Wei's (2005) findings that similar measures of psychological distress and willingness to see a counselor were significantly positively related.
4. The indirect effect of pain tolerance (path c_1') will be statistically significant and the range of the confidence interval will not contain zero. Higher psychological distress will predict lower pain tolerance, which in turn, will predict less

willingness to see a counselor. This hypothesis was based on Franklin et al.'s (2011) finding that pain tolerance significantly mediated the relationship between two mental health-related behaviors, painful and provocative life events and acquired capability of suicide.

5. Higher Asian American values will moderate the relationship between psychological distress and willingness to see a counselor.
    a. High Asian American values will predict less willingness to see a counselor (path c_2').
    b. Depending on the level of Asian American values, the positive relationship between higher psychological distress and willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path c_3'). At higher levels of adherence to Asian American values, higher psychological distress will predict lesser willingness to see a counselor. At lower levels of adherence to Asian American values, higher psychological distress will predict more willingness to see a counselor.

Pain Intensity.

6. Higher frequency of psychological distress will significantly predict more pain intensity (path a_2). This hypothesis was based on Drapeau et al.'s (2011) finding that those in psychological distress simultaneously experience physical pain and

Severeijns, Vlaeyen, van den Hout, and Weber's (2001) finding that pain intensity and psychological distress were positively related in chronic pain patients.

7. Higher pain intensity will significantly predict more willingness to see a counselor (path b_2). This hypothesis was based on the findings that those with higher pain intensity were more likely to seek medical services (Wolfe et al., 1995), where mental health services were accessed (Vogel et al., 2007).
8. Higher psychological distress will significantly predict more willingness to see a counselor (path c_2). The same rationale was applied as hypothesis 3.
9. The indirect effect (path c_4') will be statistically significant and the range of the confidence interval will not contain zero. Higher psychological distress will predict higher pain tolerance, which in turn, will predict more willingness to see a counselor. Although pain intensity was not found to be a significant indirect effect between two mental health-related behaviors in Franklin et al.'s (2011) study, it was hypothesized that an indirect effect could be detected in this study by increasing the sample size, as recommended by Franklin et al. (2011), given that

pain intensity and pain tolerance were significantly inversely related (Franklin et al., 2011).

10. Similar to hypothesis 5, higher Asian American values will moderate the relationship between psychological distress and willingness to see a counselor in the moderated mediation model including pain intensity.
    a. High Asian American values will predict less willingness to see a counselor (path c_5').
    b. Depending on the level of Asian American values, the positive relationship between higher psychological distress and willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path c_6'). At higher levels of adherence to Asian American values, higher psychological distress will predict lesser willingness to see a counselor. At lower levels of adherence to Asian American values, higher psychological distress will predict more willingness to see a counselor.

Moderation Hypotheses with Two Moderators

Pain Tolerance.

11. Higher frequency of psychological distress will significantly predict more willingness to see a counselor (path d_1).
12. Higher pain tolerance will significantly predict less willingness to see a counselor (path d_2).
13. Higher Asian American values will predict less willingness to see a counselor (path d_3).
14. Pain tolerance will moderate the positive relationship between psychological distress and willingness to see a counselor. Depending on the level of pain tolerance, the relationship between higher psychological distress and more willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path d_4). At one standard deviation above the mean of pain tolerance, the relationship of higher psychological distress on more willingness to see a counselor will be weaker than at the mean and one standard deviation below the mean. This hypothesis was based on Joiner's (2005) theory that repeated exposure to painful experiences lead to increased pain tolerance and a higher capacity for suicide. As individuals tolerate physical pain, individuals may similarly cope with their psychological distress symptoms by tolerating more psychological distress symptoms, not perceiving their distress symptoms as distressing, and be less willing to seek counseling.
15. Higher Asian American values will moderate the relationship between psychological distress and willingness to see a counselor. Depending on the level

of Asian American values, the positive relationship between higher psychological distress and willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path d_5). At higher levels of adherence to Asian American values, higher psychological distress will predict lesser willingness to see a counselor. At lower levels of adherence to Asian American values, higher psychological distress will predict more willingness to see a counselor.

Pain Intensity.

16. Higher frequency of psychological distress will significantly predict more willingness to see a counselor (path d_6).
17. Higher pain intensity will significantly predict higher willingness to see a counselor (path d_7).
18. Higher Asian American values will predict less willingness to see a counselor (path d_8).
19. Pain intensity will moderate the positive relationship between psychological distress and willingness to see a counselor. Depending on the level of pain intensity, the relationship between higher psychological distress and more willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path d_9). At one standard deviation below the mean of pain intensity, the relationship of higher psychological distress on more willingness to see a counselor will be weaker than at the mean and one standard deviation above the mean. Similar to the rationale for hypothesis 3, this hypothesis was based on the application of Joiner's (2005) theory that repeated

exposure to painful experiences leads to increased pain tolerance, which leads to fearlessness of death. Since pain tolerance and pain intensity are inversely related (Franklin et al., 2011), similar to pain tolerance, lower pain intensity may lead individuals to view their psychological distress symptoms as less distress, and be less willing to seek counseling.

20. Higher Asian American values will moderate the relationship between psychological distress and willingness to see a counselor. Depending on the level of Asian American values, the positive relationship between higher psychological distress and willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path d_{10}). At higher levels of adherence to Asian American values, higher psychological distress will predict lesser willingness to see a counselor. At lower levels of adherence to Asian American values, higher psychological distress will predict more willingness to see a counselor.

Chapter 4: Method

A. Design Statement

This study used a cross-sectional design to test moderated mediation and moderation analyses. The predictor variable was Psychological Distress (MHI-18); Pain Tolerance (measured using the cold pressor task) and Pain Intensity (VAS) as mediator and moderator variables; Asian American Values (AAVS-M) as a moderator variable; and Willingness to See a Counselor (WSC) as the criterion variable. The data for each variable were continuous.

Moderated Mediation

Mediation analyses have been used in applied social science research (Fairchild & MacKinnon, 2009; MacKinnon & Fairchild, 2009). Mediation occurs when a mediator variable intervenes between an independent variable and a dependent variable, explaining how or why they are related (Fairchild & MacKinnon, 2009). For example, pain tolerance was a mediator between painful and provocative events and the acquired capability of suicide (Franklin et al., 2011). In addition to mediation, adherence to Asian American values was hypothesized to moderate the relationship between psychological distress and willingness to see a counselor in this study.

Moderation with Two Moderators

Moderation analyses have been used in applied psychological research (Baron & Kenny, 1986; Edwards & Lambert, 2007; MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002). A moderation takes place when an independent variable has an effect on a dependent variable at varying degrees depending on a moderator variable (Baron &

Kenny, 1986). Moderation tests whether the moderator variable (individual difference or situational condition) influences the strength and direction of the relationship between a predictor and an outcome (Edwards & Lambert, 2007). Pain tolerance has been included in moderation analyses as an outcome variable (Hayes et al., 1999; Keenan et al., 2009; Wolff et al., 2008) but not as a moderator. Studies have tested to see whether various interventions could influence pain tolerance, mainly increase individuals' pain tolerance (Hayes et al., 1999; Keenan et al., 2009; Liu et al., 2010; Wolff et al., 2008). Pain intensity has also been an outcome variable in a moderation analysis (Friborg et al., 2006; Hanssen et al., 2012). However, pain intensity was found to moderate the relationship between pain inference (how pain affects daily functioning) and age (Boggero, Geiger, Sergerstrom, & Carlson, 2015).

A Priori Power Analysis

For the mediation analyses, it is recommended that the indirect effects be used to determine a priori effect size estimates (Preacher & Kelley, 2011). However, effect size determinations when using mediation analyses have been inconsistent in the methodological literature (Preacher & Kelley, 2011). Fritz and MacKinnon (2007) have provided recommendations to determine the required sample size. In order to achieve a power of .80 ($\alpha = .05$) to find small-medium effect sizes, the necessary sample size using the bias-corrected bootstrap method is $N = 148$ (Fritz & MacKinnon, 2007). For the moderation analyses, it is argued that the power to detect true interaction effects is problematic in social science research (Fairchild & MacKinnon, 2009; Frazier, Tix, & Barron, 2004). Most interaction effects in social science research explain 1% - 3% of the

variance which require a sample size range for .8 power of $N = 500 – 1000$ (Fairchild & MacKinnon, 2009). According to Frazier et al. (2004), the effect size of the interaction effect must be calculated (the R^2 change when the interaction term is added to the regression analysis). Using G*Power software (Faul, Erdfelder, Lang, & Buchner, 2007), I calculated an estimate of the effect size using the intercorrelations found in prior studies for psychological distress and intention to seek counseling ($r = .24$), obtaining an f^2 of .061. Given the desired "Power (1-β err prob)" = .80, α = .05, a predicted estimate of effect size ($f^2 = .061$), and three predictor variables (independent, moderator, and interaction variable), a total sample size of $N = 183$ is required. Therefore, I aimed to recruit 183 participants and successfully recruited 178.

B. Participants

The sample consisted of self-identified Asian American adults, 18 years or older, at the University of Maryland and/or in the Maryland, Virginia, and Washington, D.C. area. A recruitment email was sent out to 5,000 University of Maryland students at the end of the semester. As a result, there was a response rate of 0.6% ($N = 30$) from the University of Maryland. Recruitment was also conducted through social media and in-person at local churches and stores. A total sample of 178 participants was retained (78 female, 100 male). The age of the participants ranged from 18 to 53 years old ($M = 28.12$; $SD = 8.45$). The ethnic groups were as follows: 126 Korean (70.8%), 21 Chinese (11.8%), 8 Taiwanese participants (4.5%), 7 Asian Indian (3.9%), 5 Filipino (2.8%), 5 Vietnamese (2.8%), 3 Multiethnic Asian (1.7%), 1 Indonesian (0.6%), 1 Japanese (0.6%), and 1 Pakistani (0.6%) individual(s). Of these participants, 73 had bachelor's degrees (41.0%), 54 were undergraduate students (30.3%), 30 had master's degrees (16.9%), 12

had doctoral degrees (6.7%), 4 were high school graduates (2.2%), 4 were in graduate school (2.2%), 1 had other as their highest level of education (0.6%). 45 participants (25.3%) reported that they had previous counseling experience. Generation status, pain experience and exposure to physical pain are provided in Table 1.

Table 1

Demographic Information on Generation Status, Pain Experience, and Exposure to Physical Pain

Demographics	N	%
Generation Status		
2nd generation	105	59.0
1.5 generation	55	30.9
1st generation	14	7.9
3rd generation	2	1.1
5th generation	2	1.1
Experience any Major Physical Painful Experience	N	%
Yes	108	60.7
No	68	38.2
Exposure to Physical Pain	N	%
Agree Strongly	58	32.6
Agree Moderately	53	29.8
Agree Slightly	40	22.5
Disagree Slightly	10	5.6
Disagree Moderately	9	5.1
Disagree Strongly	6	3.4

C. Measures

Asian American Values. Asian American values were measured by the Asian American Values Scale-Multidimensional (AAVS-M; Kim, Li, & Ng, 2005), which assesses adherence to Asian cultural values in Asian American individuals. The AAVS-M was created to identify cultural values that were commonly endorsed by Asian American individuals who were more enculturated to American culture but also retained Asian cultural values rather than Asian cultural values in general, which can have more variability depending on the culture of reference (Kim et al., 2005). The AAVS-M contains 42 items in five subscales: Collectivism, Conformity to Norms, Emotional Self-Control, Family Recognition through Achievement, and Humility. The Collectivism

subscale contains seven items that assess participants' interest in the group over individual needs. The Conformity to Norms subscale contains seven items that assess participants' value placed on conforming to perceived social mores. The Emotional Self-Control subscale contains eight items that assess perceived importance of holding in emotions. The Family Recognition Through Achievement subscale contains fourteen items that assess whether participants perceive achievement to be tied to family reputation. The Humility subscale contains six items that assess whether participants value humility.

Kim et al. (2005) found good internal consistencies were found for AAVS-M Total, Collectivism, Conformity to Norms, Emotional Self-Control, Family Recognition through Achievement, and Humility, ranging from .75 to .92 in 3 studies. Kim et al. (2005) also found that the total and subscales of the AAVS-M were found to significantly positively correlate with the Asian Values Scale (AVS; Kim, Atkinson, & Yang, 1999), Loss of Face scale (LOF; Zane & Yeh, 2002) and Self-Construal Scale-Interdependent scores (SCS-Interdependent; Singelis, 1994). LOF assesses one's concern for a loss of face (LOF; Zane & Yeh, 2002), and SCS-Interdependent assesses how one defines the self in terms of social relationships (Singelis, 1994). LOF scores significantly positively correlated with Emotional Self-Control and Family Recognition Through Achievement. SCS-Interdependent scores significantly positively correlated with Collectivism and Family Recognition Through Achievement scores.

As predicted, Kim et al. (2005) found that the AAVS-M total, Emotional Self-Control, and Humility scores were significantly negatively correlated to the Attitudes Toward Seeking Professional Psychological Help- Short Form. In addition, Kim et al. (2005) also

found that the AAVS-M and the Rosenberg Self-Esteem Scale, a self-report measure of self-esteem, were not statistically significant. SCS-Interdependent scores significantly negatively correlated with Emotional Self-Control and Humility scores. AAVS-M total and Willingness to See a Counselor-Health Problems were found to be statistically negatively related. AAVS-M total and subscale scores with SDS scores were not statistically significant. Adequate two-week test-retest reliability was found for the AAVS-M total, Collectivism, Conformity to Norms, Emotional Self-Control, Family Recognition Through Achievement, and Humility scores, with reliability coefficients ranging from .73 to .92. In the present sample, internal consistencies were .86 for AAVS-M Total, .77 for Collectivism, .69 for Conformity to Norms, .74 for Emotional Self-Control, .89 for Family Recognition through Achievement, and .75 for Humility.

Pain tolerance. Pain tolerance, the amount of time that an individual voluntarily stays in direct contact with a pain stimulus (von Baeyer, Piira, Chambers, Trapanotto, & Zeltzer, 2005; Franklin et al., 2011) will be measured using the cold pressor task used in several studies (Bohus et al., 2000; Mitchell et al., 2004; von Baeyer et al., 2005). Pain tolerance is assessed by measuring the total time elapsed from the start of hand submersion in the ice bath until the time when participants no longer wants to be in contact with the pain stimulus, implying that the pain stimulus has become no longer tolerable.

The cold pressor task requires "a noxious stimulus, a protocol or method of stimulus application, and a standardized means of quantifying the response to noxious stimulation" (Edens & Gil, 1995, p. 199). The cold pressor task involves a container holding the water, ice, water circulation pump, armrest, and thermometer. This will be

constructed adhering to the advice and consultation of a previous author who conducted the cold pressor task in the Franklin et al. (2011) study. The water temperature will be set at 2° Celsius (measured by a thermometer) which is within the temperature range (one to five degree(s) Celsius) used in prior studies (von Baeyer et al., 2005). The water circulation pump is placed in the container to circulate the ice water so that the water temperature near the participant's hand does not increase due to the heat emitted from the participant's hand (Franklin et al., 2010). The pain threshold, the point that participants indicate that they feel pain, and pain tolerance, the point that the pain becomes intolerable, will be measured by a stopwatch.

The consensus among stakeholders in ethical research such as the Institutional Review Board, the participants, the parents of participants (in the cases involving children participants), and researchers, is that the cold pressor task produces minimal risk because of: a) short duration of exposure to the pain stimulus; b) the exclusively voluntary nature; c) the potential benefits outweighing the cost of temporary discomfort; and d) participants finding the task to be interesting (Birnie et al., 2010; von Baeyer et al., 2005). Koenig et al. (2013) found good test-retest stability of the cold pressor task to assess pain tolerance. Lee et al. (2010) also found that pain tolerance inversely correlated with different pain rating scales such as the Present Pain Index.

Pain intensity. Pain intensity, the rating of the intensity of the pain stimulus, will be measured using the visual analog scale (VAS; McCormack, Horne, & Sheather, 1988) at the pain threshold (when participants first feel pain) and pain tolerance (when participants remove their hand from the ice water) time points during the cold pressor

task. Participants will be asked to rate the painfulness of the ice water is on a Likert scale, ranging from 0 (*no pain*) to 100 (*worst imaginable pain*) (Burckhardt & Jones, 2003). The average of the pain intensity ratings at pain threshold and pain tolerance time were calculated.

Several variations have been used in which researchers use a one to ten scale without pictorial graphics. Franklin et al. (2011) included a pain intensity measure asking participants to rate the painfulness of the pain stimulus on a scale from 1 (*barely perceptible*) to 10 (*most intense pain imaginable*). A researcher will ask participants to verbalize the painfulness of the stimulus and will be out of the participant's visual periphery similar to Franklin et al. (2011) to prevent the observer from influencing the participants' response.

The VAS has good test-retest reliability with some variability shown when comparing literate versus not literate participants, with literate individuals' responses showing higher reliability ($r = .94$, $p < .0001$) than not literate individuals ($r = .71$, $p < .001$) in a rheumatology outpatient setting (Ferraz et al., 1990). A written version of the VAS for pain was correlated with a 5-point version that was expressed verbally to patients, showing an adequate correlation range of .62 to .99 (Downie, Leatham, Rhind, Wright, Branco, & Anderson, 1978; Scott & Muskisson, 1979). High correlations have also been found between horizontal and vertical versions of the VAS at r -= .99 (Scott & Muskisson, 1979).

Willingness to see a counselor. Willingness to see a counselor (WSC; Gim et al., 1990) measures participants' willingness to see a counselor for 24 different problems

(i.e., general anxiety and depression). The WSC is comprised of 24 items with each item being scored on a 4-point Likert scale ranging from 1 (*not willing*) to 4 (*willing*). The summation of scores on all 24 items creates a total score with higher scores indicating more willingness to see a counselor. Kim and Omizo (2003) found empirical support for three subscales: personal problems, academic/career problems, and health problems. The WSC originated from the Personal Problems Inventory, also called the Intention of Seeking Counseling Inventory (ISCI; Cash et al., 1975), which consisted of 15 common problems that college students bring to counseling (i.e., test anxiety, inferiority feelings). Gim et al. (1990) further modified an already modified version of the ISCI by Ponce and Atkinson (1989) that included concerns relevant to Asian American students.

In terms of reliability, good internal consistencies were found for the WSC in Asian American college student populations in two studies of .92 (Kim & Omizo, 2003) and .93 (Kim & Park, 2009). In addition, Kim and Omizo (2003) found factor analytic validity by showing 58% of the variance could be explained by the good fit between the measure items and the three subscales (personal problems, academic/career) Kim and Omizo (2003) also used goodness-of-fit tests to provide construct validity evidence indicating that the measure fit the data well (Goodness of Fit Index = .965). In the current study, internal consistencies were .93 for the WSC (Total), .88 for WSC- Personal Problems, .85 for WSC- Academic/Career Problems, and .80 for WSC-Health Problems.

Psychological distress. Psychological distress was measured by the Mental Health Inventory – 18 version (MHI-18; Ware, Manning, Duan, Wells, & Newhouse, 1984). The MHI-18 (Ware, Manning, Duan, Wells, & Newhouse, 1984) consists of four subscales: Anxiety (five items), Depression (five items), Behavioral and Emotional

Control (four items), and Positive Affect (four items). The frequency of mental health issues is added on a 6-point Likert scale, ranging from 1 (*none of the time*) to 6 (*all of the time*) (National Multiple Sclerosis Society, 1997). Questions 2, 4, 6, 9, 11, 12, 14, 16, 17, 18 were reverse scored to indicate higher scores indicate more psychological distress. One advantage of administering the MHI-18 is the shortened length of the scale compared to the MHI-38.

To compute the Psychological Distress-Total average score, the sum of all the questions was then divided by 18, subtracted by one, multiplied by 100, and then divided by five (National Multiple Sclerosis Society, 1997). To compute the Psychological Distress-Anxiety average score, the sum of questions 4, 6, 10, 11, and 18 was then divided by five, subtracted by one, multiplied by 100, and then divided by five (National Multiple Sclerosis Society, 1997). To compute the Psychological Distress-Depression average score, the sum of questions 2, 9, 12, and 14 was then divided by four, subtracted by one, multiplied by 100, and then divided by five (National Multiple Sclerosis Society, 1997). To compute the Psychological Distress-Behavioral and Emotional Control average score, the sum of questions 5, 8, 16, and 17 was then divided by four, subtracted by one, multiplied by 100, and then divided by five (National Multiple Sclerosis Society, 1997). To compute the Psychological Distress-Positive Affect average score, the sum of questions 1, 7, 13, and 15 was then divided by four, subtracted by one, multiplied by 100, and then divided by five (National Multiple Sclerosis Society, 1997).

The MHI originated from the National Health Insurance Study that assessed the mental health of over five thousand participants in a stratified sample from six U.S. sites (Veit & Ware, 1983). Over the years, the MHI has improved through several studies

testing reliability (i.e., Sherbourne, Hays, Ordway, DiMatteo, & Kravitz, 1992), validity and factor structure (Veit & Ware, 1983). The original MHI (MHI-38) that includes 38 items has been modified into two shortened versions of 18 (Ware, Manning, Duan, Wells, & Newhouse, 1984) and 5 items (Berwick et al., 1991). The MHI measure has been widely used to assess psychological distress since the original version was created for the National Health Insurance Study (Veit & Ware, 1983). Different versions, mostly in reference to the original 38-item version has been shown to produce internal consistency ranging from .83 to .96 (Barr, 2010; Veit & Ware, 1983) in adult and college student populations. The MHI-18 has maintained the subscale structure of the original (Ware et al., 1984). This measure has been found to perform superior to other measures that assess psychological distress such as the General Health Questionnaire and the Somatic Symptom Inventory determined by a Receiver Operating Characteristic analysis (Weinstein et al., 1984).

The MHI-18 was found to perform better in detecting diagnostic disorders compared to other established measures such as the General Health Questionnaire and the Somatic Symptom Inventory using Receiver Operating Characteristic analysis (Weinstein et al., 1984). Convergent validity was found for the different versions of the MHI as it correlated with other mental health assessments such as more social support reported, more positive general health perceptions, and less life satisfaction (Sherbourne, Hays, Ordway, DiMatteo, & Kravitz, 1992). Variations of the MHI have also been shown to predict the use of general medical services (Manning, Newhouse, & Ware, 1982). There is limited empirical validity evidence for the MHI-18, specifically. In the present sample, internal consistencies were .91 for the Psychological Distress-Total, .83 for Psychological

Distress-Anxiety, .85 for Psychological Distress-Depression, .73 for Psychological Distress-Behavioral and Emotional Control, and .75 for Psychological Distress-Positive Affect.

Demographics questionnaire. Participants were asked to report their self-identified gender, age, ethnicity, year in school, parents' education, and generational status. Participants were also asked to indicate whether they had previous counseling experience. Participants were asked whether they had experienced any major physical pain experiences and their perceived exposure to physical pain.

D. Procedure

After obtaining approval from the Institutional Review Board at the University of Maryland, I recruited Asian and Asian American adult participants from the University of Maryland through a listserv comprised of a random sample of self-identified Asian and Asian American college students and in the community. I provided a recruitment email or message about the study explicitly stating that the study required in-person participation and the inclusion and exclusion criteria. Participants were informed that they would receive the following compensation: participants would receive $5 and a chance to win one of five Amazon.com or Starbucks gift cards of a $20 value. To ensure safety, the researcher received cardiopulmonary resuscitation (CPR) training and rented an automated external defibrillator (AED) to have on-site for all administrations of the cold pressor task. During the in-person portion, participants first filled out the Asian American values, psychological distress, and willingness to see a counselor measures, and demographic questions. Participants were then informed of the voluntary nature of the

cold pressor task; that their hand could be removed at any time and their performance was not evaluated in any way. They were then asked to participate in the cold pressor task (see Figure 5). The cold pressor task requires an apparatus consisting of a container, ice, water, armrest, thermometer, a timer, and a water circulation pump. The investigator of the current study consulted with a past researcher who conducted the cold pressor task in a prior study (Franklin et al., 2011). Consistent with prior studies, the water temperature was set to 2° Celsius (Franklin et al., 2011). The water temperature varied by .1 to .6 degrees Celsius; the researcher added more ice to the water to adjust the temperature when participants placed their hands in the water for longer time periods.

Figure 5. The cold pressor task.

Participants were seated next to the ice water apparatus. Participants were asked to let the observer know when they began to feel pain. Participants were asked to submerge their non-dominant hand into the ice water to their wrist. The observer began the timer. The observer then marked the time at which participants indicated that they felt pain (pain threshold) and asked participants to indicate their pain intensity on a scale from one to one hundred. When participants removed their hand from the ice water, the observer marked the time and again asked participants to indicate the intensity of their pain. Upon completion of the task, participants were offered warm beverages (coffee, tea, water) to neutralize the cold-water exposure and to thank them for their participation. Monetary compensation was provided to each participant and a copy of the informed consent that they signed and a list of mental health resources.

Chapter 5: Data Analysis

Data Screening and Plan of Analysis

Data Screening. Missing data analysis was conducted in SPSS. One survey was removed due to confusion about the screening questions and was eliminated before the cold pressor task was performed ($N = 1$). After removing the one survey, no surveys were removed because there were no participants who did not complete more than 10 percent of their responses. The number of cases missing ranged from three to thirteen. When the analyses were conducted using means imputed into the missing values, there were little to no difference in the results. Due to practical reasons, participants completed the willingness to see a counselor measure before participating in the cold pressor task. Thus, it is possible that the ordering might have lessened the relationship between pain tolerance and pain intensity on willingness to see a counselor. The following assumptions for the regression models were checked: linearity, normality, homogeneity of variance, skewness, and kurtosis (Cohen, Cohen, West, & Aiken, 2003).

Linearity was also assessed with the variables used. Relationships between pain intensity, psychological distress, Asian American values, and willingness to see a counselor appeared linear. However, all relationships with pain tolerance did not appear linear. Normality was tested using the Kolmogorov-Smirnov Test and Q-Q Plots. According to the Kolmogorov-Smirnov test, AAVS-M (Total and Emotional Self-Control Subscale) and Willingness to See a Counselor-Total were normally distributed; however, Psychological Distress (Total and Depression subscale), Pain Tolerance, and Pain Intensity were not normally distributed. Upon examining the Q-Q plots for the variables that were not normally distributed, Psychological Distress Total and the Depression

subscale were acceptable, as the points did not dramatically deviate from the trend line. Homogeneity of variance was tested by visually assessing whether the unstandardized residual plot against the predicted equation (Lomax & Hahs-Vaughn, 2007). The models involving pain intensity showed random scattering of the residuals near zero. However, the models involving pain tolerance, total psychological distress, and willingness to see a counselor total score were heteroscedastistic.

Transformation, using the log function in SPSS was conducted for Willingness to See a Counselor Total and Personal Problems subscale and Pain Tolerance. This was conducted for three reasons: to linearize the X-Y relationship, stabilize the variance of the residuals to improve homoscedasticity, and to normalize the residuals (Cohen, Cohen, West, & Aiken, 2003). In addition, the bias-corrected bootstrapping confidence interval method was employed to assess indirect effects through resampling from the original sample and correcting for skewness that occurs with using bootstrapping methods (Preacher, Rucker, & Hayes, 2007). As a result of the transformation, skewness and kurtosis for each variable fell below the ±2.0 cut off (Table 2). Descriptive Statistics and correlational analyses are presented in Table 2. A ceiling effect was present for pain tolerance due to having to cut off the time at three minutes for ethical reasons. It is also possible that floor effects were present for depressive symptoms and willingness to see a counselor for personal problems. Ceiling and floor effects can create biased parameter estimates and produce wrong interpretations (Wang, Zhang, McArdle, & Salthouse, 2008). Thus, caution should be taken when interpreting the results of this study.

Table 2

Descriptive Statistics and Correlations for Primary Analysis with Psychological Distress, Pain Tolerance, Pain Intensity, Willingness to See a Counselor, and Asian American Values

Variable	1	2	3	4	5
1. PD-Total	--				
2. Pain Tolerance	.00	--			
3. Pain Intensity	.06	**-.25****	--		
4. Willingness	.11	.01	-.01	--	
5. Asian American Values	**.17***	-.06	.01	-.05	--
M	30.13	1.51	67.04	1.69	169.17
SD	13.59	0.40	14.51	0.14	24.23
Range	3.33-83.33	0.20-2.26	12.50-100	1.38-1.98	87-230
Skewness	1.04	0.30	-0.77	-0.36	-0.14
Kurtosis	1.55	0.26	1.14	-0.28	0.24
α	.91	--	.55	.93	.86

Note. *p < .05. **p < .01. PD Total = Psychological Distress – Total Score; Willingness = Willingness to See a Counselor – Total Score; Asian American Values = Asian American Values Scale – Multidimensional Total Score.

Plan of Analysis: Moderated Mediation Analyses. This study tested the hypothesized moderated mediation models using the bias-corrected bootstrapping CI method, as described by Preacher, Rucker, and Hayes (2007) using 5,000 bootstrapping samples. The bias-corrected bootstrap confidence interval (CI) method was recommended when power is a concern (Hayes & Scharkow, 2013). Using the PROCESS macro in SPSS (Hayes, 2013), I determined the estimated product of the two path coefficients in two models ($a_1 \times b_1$) and ($a_2 \times b_2$), and conditional direct effect of total psychological distress on willingness to see a counselor at different levels of Asian American values. For each model, I determined a 95% CI at the 2.5th and 97.5th percentile of the distribution, and used the bias-corrected CI that adjusted for a bias (Hayes & Scharkow,

2013). If the 95% CIs did not contain zero, the indirect effects, $(a_1 \times b_1)$ and $(a_2 \times b_2)$, were statistically significant. These analyses controlled for gender.

Plan of Analysis: Moderation Analyses. This study also tested the hypothesized moderation model using the PROCESS macro (Hayes, 2013) in SPSS. These analyses controlled for gender. I tested whether the interaction terms of psychological distress and pain tolerance (PD X PT) and psychological distress and Asian American values (PD X AAV) were statistically significant. I then tested whether psychological distress and pain intensity (PD X PI) and psychological distress and Asian American values (PD X AAV) were statistically significant. I then explored the moderation effect by looking at the relationship between psychological distress and willingness to see a counselor at different levels (one standard deviation below the mean, mean, and one standard deviation above the mean) of pain tolerance, pain intensity, and Asian American values.

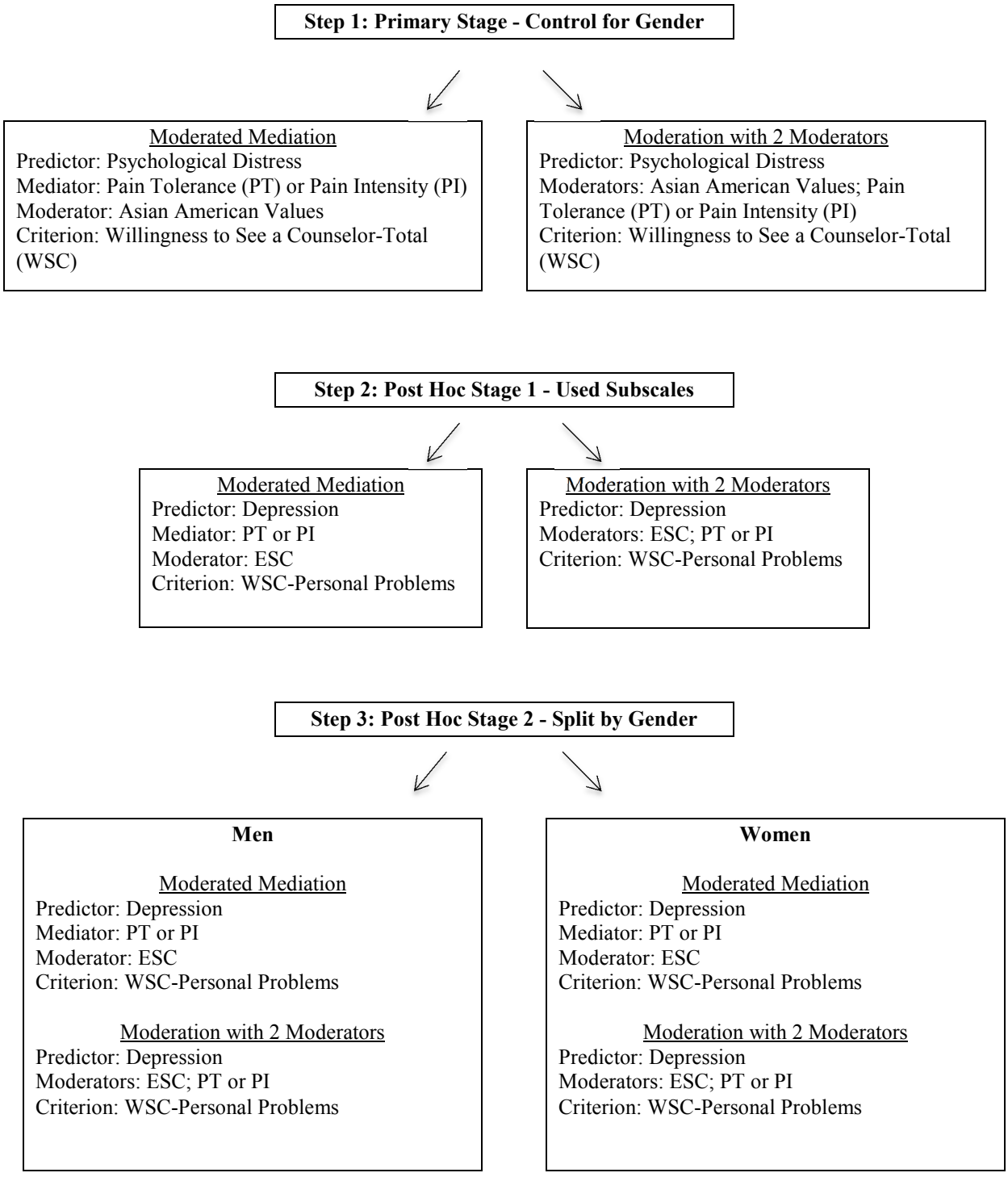


Figure 6. Flow chart of plan of analysis.

Table 3

Significant and Unexpected Findings from Primary and Post Hoc Analyses

Moderator	Sample	Significant Findings
Pain intensity	Full Sample	1. PI moderated the relationship between PD-total and WSC-total. • PD X PI significantly predicted more WSC-total. • At high PI (+1SD), regardless of their level of adherence to AAV, higher PD predicted more WSC-total.
Pain Tolerance	Women	2. PT moderated the relationship between Dep and WSC-PP. • In the moderation with 2 moderators models (ESC and PT): o Higher PT predicted more WSC-PP. o Dep X PT predicted less WSC-PP. o Higher ESC predicted less WSC-PP. o When mean ESC (M) and low PT (-1 SD), higher Dep predicted more WSC-PP.
Emotional Self-Control	Full Sample	3. ESC moderated the relationship between Dep and WSC-PP. • In the moderated mediation models for PT and PI: o When high ESC (+1 SD), higher Dep predicted more WSC-PP. • In the moderation with 2 moderators models (ESC and PT; ESC and PI): o Higher Dep predict more WSC-PP when: ▪ Mean and high ESC (M and +1SD) and low and mean PT (-1 SD and M); ▪ Mean and high ESC (M and +1SD) and mean and high PI (M and +1SD).
Emotional Self-Control	Men	4. ESC moderated the relationship between Dep and WSC-PP. • In the moderated mediation models for PT and PI: o When mean and high ESC (M and +1 SD), higher Dep predicted more WSC-PP. • In the moderation with 2 moderators models (ESC and PI): o Higher Dep predict more WSC-PP when: ▪ Mean and high ESC (M and +1SD) and mean and high PI (M and +1SD).

Unexpected Findings

1. PD was not statistically significantly related to WSC-total. (r = .11, p = .14).
2. Higher PI predicted less WSC-total (t = -2.48, p < .01) in the moderation analysis.
3. ESC moderated the relationship between Dep and WSC-PP but AAV did not.

Note: Asian American Values (AAV); Depressive symptoms (Dep; subscale of PD); Emotional Self-Control (ESC; subscale of Asian American Values); Pain Intensity (PI); Pain Tolerance (PT); Psychological Distress (PD-total score); Willingness to See a Counselor (WSC-total); Willingness to See a Counselor for Personal Problems (WSC-PP; subscale of WSC-total).

Results

Primary Analysis: Moderated Mediation

Hypothesis 1: Higher frequency of psychological distress will significantly predict less pain tolerance (path a_1). Controlling for gender (β = -0.15, $p < .05$), the main effect of psychological distress was not statistically significant (β = 0.00, p = .75) shown in Table 4.

Hypothesis 2: Higher pain tolerance will significantly predict less willingness to see a counselor (path b_1). Controlling for gender (β = 0.07, $p < .01$), the main effect of pain tolerance was also not statistically significant (β = 0.02, p = .48).

Hypothesis 3: Higher psychological distress will significantly predict more willingness to see a counselor (path c_1). The main effect of psychological distress was also not statistically significant (β = 0.00, p = .52).

Hypothesis 4: The indirect effect of pain tolerance (path $c_1^{'}$) will be statistically significant and the range of the confidence interval will not contain zero. Support for the indirect effect of pain tolerance was not found, with the 95% bootstrapping confidence intervals including zero (95% CI = [-0.00, 0.00]).

Hypothesis 5a: High Asian American values will predict less willingness to see a counselor (path $c_2^{'}$). The main effect of Asian American values was also not statistically significant (β = 0.00, p = .92).

Hypothesis 5b: Depending on the level of Asian American values, the positive relationship between higher psychological distress and willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path $c_3^{'}$). The

results showed a significant amount of variance explained by the model (R^2 = .08, $F(5,159) = 2.54$, $p < .05$). Contrary to my hypotheses, the β coefficient of the interaction of psychological distress and Asian American values (path $c_3^{'}$) was not statistically significant indicating there was no evidence of a moderation effect ($\beta = 0.00$, $p = .85$).

Table 4

Regression Results for Conditional Indirect Effect of Pain Tolerance as Mediator and Asian American Values as Moderator

Predictor	*B*	*SE*	*t*	*p*	Bootstrapping BC 95% Lower CI	Upper CI	*R*	R^2	*F*	*p*
	Pain Tolerance						**.19**	**.04**	**3.35**	**.04**
Constant	1.59	0.040	39.8	.00	1.51	1.66				
PD Total	0.001	0.003	0.32	.75	-0.005	0.006				
Gender	**-0.153**	**0.060**	**-2.54**	**.01**	**-0.271**	**-0.034**				
	Willingness -Total						**.28**	**.08**	**2.54**	**.03**
Constant	1.626	0.485	33.52	.00	1.530	1.722				
Pain Tolerance	0.021	0.030	0.700	.48	-0.038	0.079				
PD Total	0.001	0.001	0.651	.52	-0.001	0.003				
Asian American Values	0.000	0.001	-0.097	.92	-0.000	0.001				
PD Total x AAVS	0.000	0.000	0.191	.85	-0.000	0.000				
Gender	**0.074**	**0.022**	**3.325**	**.00**	**0.030**	**0.119**				

Conditional direct effect of PD on WSC at AAVS = $M \pm 1\ SD$

	Boot direct effect	Boot *SE*	*t*	*p*	LLCI	ULCI
−1 *SD* (144.76)	0.001	0.002	0.33	.74	-0.003	0.004
M (169.42)	0.001	0.001	0.65	.52	-0.001	0.003
+1 *SD* (194.09)	0.001	0.001	0.79	.43	-0.001	0.003

	Boot indirect effect	Boot *SE*	LLCI	ULCI
Pain Tolerance	0.000	0.000	-0.000	0.000

Note. *SE* = standard error; BC = bias-corrected; CI = confidence interval. **Bolded text indicate $p < .05$**.

Hypothesis 6: Higher frequency of psychological distress will significantly predict more pain intensity (path a_2). Controlling for gender (β = 0.83, p = .73), the main effect of psychological distress was not statistically significant (β = 0.08, p = .38) shown in Table 5.

Hypothesis 7: Higher pain intensity will significantly predict more willingness to see a counselor (path b_2). Controlling for gender (β = 0.07, p < .01), the main effect of pain intensity was also not statistically significant (β = -0.00, p = .84).

Hypothesis 8: Higher psychological distress will significantly predict more willingness to see a counselor (path c_2). The main effect of psychological distress was also not statistically significant (β = 0.00, p = .49).

Hypothesis 9: The indirect effect (path $c_4^{'}$) will be statistically significant and the range of the confidence interval will not contain zero. Support for the indirect effect of pain tolerance was not found, with the 95% bootstrapping confidence intervals including zero (95% CI = [-0.00, 0.00]).

Hypothesis 10a: High Asian American values will predict less willingness to see a counselor (path $c_5^{'}$). The main effect of Asian American values was also not statistically significant (β = -0.00, p = .87).

Hypothesis 10b: Depending on the level of Asian American values, the positive relationship between higher psychological distress and willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path $c_6^{'}$). The results showed a significant amount of variance explained by the model (R^2 = .08, F(5, 159) = 2.58, p < .05). Contrary to my hypotheses, the β coefficient of the interaction of

psychological distress and Asian American values (path c_6') was not statistically significant indicating there was no evidence of a moderation effect ($\beta = 0.00$, $p = .88$).

Table 5

Regression Results for Conditional Indirect Effect of Pain Intensity as Mediator and Asian American Values as Moderator

Predictor	*B*	*SE*	*t*	*p*	Bootstrapping BC 95% Lower CI	Upper CI	*R*	R^2	*F*	*p*
	Pain Intensity						.08	.01	0.54	.58
Constant	66.300	1.440	46.033	.00	63.45	69.14				
PD Total	0.079	0.089	0.88	.38	-0.10	0.25				
Gender	0.83	2.42	0.34	.73	-3.95	5.60				
	Willingness to See a Counselor -Total						**.28**	**.08**	**2.58**	**.03**
Constant	1.67	0.05	31.94	.00	1.57	1.77				
Pain Intensity	-0.000	0.001	-0.21	.84	-0.002	0.001				
PD Total	0.001	0.001	0.69	.49	-0.001	0.003				
Asian American Values	-0.000	0.001	-0.17	.87	-0.001	0.001				
PD Total x AAVS	0.000	0.000	0.15	.88	-0.000	0.000				
Gender	**0.071**	**0.022**	**3.23**	**.00**	**0.03**	**0.11**				

	Conditional direct effect of PD on WSC at AAVS = $M \pm 1$ *SD*					
	Boot direct effect	Boot *SE*	*t*	*p*	LLCI	ULCI
−1 *SD* (144.76)	0.001	0.002	0.33	.70	-0.003	0.004
M (169.42)	0.001	0.001	0.69	.49	-0.001	0.003
+1 *SD* (194.09)	0.001	0.001	0.80	.43	-0.001	0.003

	Boot indirect effect	Boot *SE*	LLCI	ULCI
Pain Intensity	0.000	0.000	-0.000	0.000

Note. *SE* = standard error; BC = bias-corrected; CI = confidence interval. **Bolded text indicate $p < .05$**.

Primary Analysis: Moderation

Hypothesis 1: Higher frequency of psychological distress will significantly predict more willingness to see a counselor (path d_1). Controlling for gender (β = 0.07, p < .01), the main effect of psychological distress was not statistically significant (β = 0.00, p = .90) shown in Table 6.

Hypothesis 2: Higher pain tolerance will significantly predict less willingness to see a counselor (path d_2). The main effect of pain tolerance was also not statistically significant (β = 0.04, p = .70).

Hypothesis 3: Higher Asian American values will predict less willingness to see a counselor (path d_3). The main effect of Asian American values was also not statistically significant (β = -0.00, p = .88).

Hypothesis 4: Pain tolerance will moderate the positive relationship between psychological distress and willingness to see a counselor. Depending on the level of pain tolerance, the relationship between higher psychological distress and more willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path d_4). The results showed a significant amount of variance explained by the model (R^2 = .08, F(6, 158) = 2.12, p < .05). Contrary to my hypotheses, the β coefficient of the interaction of psychological distress and pain tolerance (path d_4) was not statistically significant indicating there was no evidence of a moderation effect (β = -0.00, p = .86).

Hypothesis 5: Higher Asian American values will moderate the relationship between psychological distress and willingness to see a counselor. Depending on the level of Asian American values, the positive relationship between higher psychological

distress and willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path d_5). Contrary to my hypotheses, the β coefficient of the interaction of psychological distress and Asian American values (path d_5) was not statistically significant indicating there was no evidence of a moderation effect ($\beta = 0.00$, $p = .91$).

Table 6

Regression Results for Testing Moderation of AAVS and Pain Tolerance on the Relationship between Psychological Distress and Willingness to See a Counselor

Variables	β	*SE*	*t*	*p*	95% CI (Lower, Higher)	*R*	R^2	*F*	*p*
						.28	**.08**	**2.12**	**.05**
Constant	1.61	0.25	6.54	.00	1.12, 2.09				
Pain Tolerance	0.04	0.10	0.39	.70	-0.15, 0.23				
Psychological Distress	0.00	0.01	0.12	.90	-0.01, 0.02				
PD x PT	-0.00	0.00	-0.17	.86	-0.01, 0.01				
Asian American Values	-0.00	0.00	-0.15	.88	-0.00, 0.00				
PD x AAVS	0.00	0.00	0.11	.91	-0.00, 0.00				
Gender	**0.07**	**0.02**	**3.31**	**.00**	**0.03, 0.12**				

ΔR^2 due to interaction	ΔR^2	*F*	*p*
PD x PT	.00	0.03	.86
PD x AAVS	.00	0.01	.91
PD x AAV x PT	.00	0.02	.98

Note. CI = confidence interval. **Bolded text indicate $p < .05$**.

Conditional Effect of Psychological Distress on Willingness to See a Counselor at Values of the Moderators, Asian American Values and Pain Tolerance

Moderator 1	**Moderator 2**	***B***	***SE***	***t***	***p***	**Lower CI**	**Upper CI**
AAVS	Pain Tolerance						
−1 *SD* (144.76)	−1 *SD* (1.13)	0.00	0.00	0.50	.62	-0.00	0.00
−1 *SD* (144.76)	*M* (1.52)	0.00	0.00	0.47	.64	-0.00	0.00
−1 *SD* (144.76)	+1 *SD* (1.91)	0.00	0.00	0.24	.81	-0.00	0.00
M (169.42)	−1 *SD* (1.13)	0.00	0.00	0.71	.48	-0.00	0.00
M (169.42)	*M* (1.52)	0.00	0.00	0.78	.43	-0.00	0.00
M (169.42)	+1 *SD* (1.91)	0.00	0.00	0.32	.75	-0.00	0.00
+1 *SD* (194.09)	−1 *SD* (1.13)	0.00	0.00	0.76	.45	-0.00	0.00
+1 *SD* (194.09)	*M* (1.52)	0.00	0.00	0.77	.44	-0.00	0.00
+1 *SD* (194.09)	+1 *SD* (1.91)	0.00	0.00	0.34	.73	-0.00	0.00

Hypothesis 6: Higher frequency of psychological distress will significantly predict more willingness to see a counselor (path d_6). Controlling for gender (β = 0.07, p < .01), the main effect of psychological distress was not statistically significant (β = -0.00, p = .23) shown in Table 7.

Hypothesis 7: Higher pain intensity will significantly predict higher willingness to see a counselor (path d_7). Support was found for the main effect of pain intensity (β = -0.00, t = -2.48, p = < .01) but in the opposite direction contrary to prediction.

Hypothesis 8: Higher Asian American values will predict less willingness to see a counselor (path d_8). The main effect of Asian American values was not statistically significant (β = -0.00, p = .92).

Hypothesis 9: Pain intensity will moderate the positive relationship between psychological distress and willingness to see a counselor. Depending on the level of pain intensity, the relationship between higher psychological distress and more willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path d_9). The results showed a significant amount of variance explained by the model (R^2 = .12, F(6, 158) = 4.47, p < .01). The β coefficient of the interaction of psychological distress and pain intensity (path d_9) was statistically significant indicating there was evidence of a moderation effect (β = 0.00, p < .05). Regardless of differing levels (one standard deviation above, below, and at the mean) of Asian American values, at one standard deviation above the mean of pain intensity predicted a statistically positive relationship between psychological distress and willingness to see a counselor.

Hypothesis 10: Higher Asian American values will moderate the relationship between psychological distress and willingness to see a counselor. Depending on the

level of Asian American values, the positive relationship between higher psychological distress and willingness to see a counselor will change in magnitude, indicated by a statistically significant interaction (path d_{10}). Contrary to my hypotheses, the β coefficient of the interaction of psychological distress and Asian American values (path d_{10}) was not statistically significant indicating there was no evidence of a moderation effect ($\beta = 0.00$, $p = .99$).

Table 7

Regression Results for Testing Moderation of AAVS and Pain Intensity on the Relationship between Psychological Distress and Willingness to See a Counselor

Variables	β	*SE*	*t*	*p*	95% CI (Lower, Higher)	*R*	R^2	*F*	*p*
						.35	**.12**	**4.47**	**.00**
Constant	1.95	0.26	7.62	.00	1.44, 2.46				
Pain Intensity	**-0.00**	**0.00**	**-2.48**	**.01**	**-0.01, -0.00**				
Psychological Distress	-0.01	0.01	-1.19	.23	-0.03, 0.01				
PD x PI	**0.00**	**0.00**	**2.49**	**.01**	**0.00, 0.00**				
Asian American Values	-0.00	0.00	-0.11	.92	-0.00, 0.00				
PD x AAVS	0.00	0.00	-0.00	.99	-0.00, 0.00				
Gender	**0.07**	**0.02**	**3.43**	**.00**	**0.03, 0.12**				

ΔR^2 due to interaction	ΔR^2	*F*	*p*
PD x PI	**.05**	**6.19**	**.01**
PD x AAVS	.00	.00	.99
PD x AAV x PI	**.05**	**3.30**	**.04**

Note. CI = confidence interval. **Bolded text indicate $p < .05$**.

Conditional Effect of Psychological Distress on Willingness to See a Counselor at Values of the Moderators, Asian American Values and Pain Intensity

Moderator 1	**Moderator 2**	***B***	***SE***	***t***	***p***	**Lower CI**	**Upper CI**
AAVS	Pain Intensity						
−1 *SD* (144.76)	−1 *SD* (52.06)	-0.00	0.00	-0.65	.52	-0.00	0.00
−1 *SD* (144.76)	*M* (66.65)	0.00	0.00	0.94	.35	-0.00	0.00
−1 *SD* (144.76)	**+1 *SD* (81.24)**	**0.00**	**0.00**	**2.54**	**.01**	**0.00**	**0.01**
M (169.42)	−1 *SD* (52.06)	-0.00	0.00	-083	.41	-0.00	0.00
M (169.42)	*M* (66.65)	0.00	0.00	1.31	.19	-0.00	0.00
***M* (169.42)**	**+1 *SD* (81.24)**	**0.00**	**0.00**	**2.88**	**.00**	**0.00**	**0.01**
+1 *SD* (194.09)	−1 *SD* (52.06)	-0.00	0.00	-0.81	.42	-0.00	0.00
+1 *SD* (194.09)	*M* (66.65)	0.00	0.00	1.05	.30	-0.00	0.00
+1 *SD* (194.09)	**+1 *SD* (81.24)**	**0.00**	**0.00**	**2.30**	**.02**	**0.00**	**0.01**

Note. **Bolded text indicate $p < .05$**.

Primary Analysis Summary

This study tested moderated mediation models involving pain tolerance and pain intensity as mediators and Asian American values as a moderator. Pain tolerance and pain intensity did not mediate the relationship between psychological distress and willingness to see a counselor. In addition, Asian American values did not moderate the relationship between psychological distress and willingness to see a counselor. In the moderated mediation model including pain tolerance, gender predicted lower pain tolerance and more willingness to see a counselor such that women had lower pain tolerance than men and were more willing to see a counselor. This was not the case in the moderated mediation model including pain intensity as gender did not predict pain intensity. Nonetheless, gender did predict more willingness to see a counselor similar to the model involving pain tolerance. Women were more willing to see a counselor than men.

In the moderation model including both pain tolerance and Asian American values as moderators, gender was the only statistically significant predictor of willingness to see a counselor. However, in the moderation model including both pain intensity and Asian American values, those with higher pain intensity were less willingness to see a counselor, while women were more willing to see a counselor. Pain intensity was found to act as a moderator between psychological distress and willingness to see a counselor. The interaction of psychological distress and pain intensity significantly predicted more willingness to see a counselor. More specifically, those with higher pain intensity (at one standard deviation above the mean), regardless of their level of adherence to Asian American values, were more willingness to see a counselor when their psychological distress was high. In essence, Asian American individuals' willingness to see a counselor

when they are in psychological distress changes depending on the pain intensity, in which higher pain intensity predicts more willingness to see a counselor when in distress.

Post Hoc Analyses

Given the unexpected non-significant results in the primary analysis, post hoc analyses were conducted to: a) test more specific cultural, psychological and physiological factors by using subscales (Step 2: Post Hoc Stage 1); and b) to examine further gender differences (Step 3: Post Hoc Stage 2). These post hoc tests with subscales were conducted to determine whether the pattern of significant/non-significant results was, in part, a function of measure/scale specificity (i.e., ruling out a rival explanation that non-significant results in the primary analysis was due to measurements/scale scores that were too broad). To clarify, the post hoc analysis followed the same plan of analysis as the primary analysis and the only difference was that subscales were used (rather than total scores in the primary analysis).

In the first stage of post hoc analyses, moderation mediation and moderation models were conducted with the depression subscale of psychological distress, emotional self-control subscale of Asian American values, and willingness to see a counselor for personal problems. In the second stage, due to statistically significant gender effects in the primary analysis and post hoc stage 1 using subscales, moderated mediation and moderation hypotheses were examined separately for those who self-identified as male and female using the depression subscale of psychological distress, emotional self-control subscale of Asian American values, and willingness to see a counselor for personal problems. Descriptive statistics for Post Hoc Stage 1 using subscales, Depression,

Willingness to See a Counselor for Personal Problems, and Emotional Self-Control are shown in Table 8. Descriptive statistics for Post Hoc Stage 2 with gender differences are shown for men and women in Table 9 and 10, respectively.

Table 8

Descriptive Statistics and Correlations for Post Hoc Stage 1 with Subscales: Depression, Pain Tolerance, Pain Intensity, Willingness to See a Counselor for Personal Problems, and Emotional Self-Control

Variable	1	2	3	4	5
1. Depression	--				
2. Pain Tolerance	.02	--			
3. Pain Intensity	-.01	**-.25****	--		
4. WSC – Personal	**.16***	-.00	-.02	--	
5. Emotional Self-Control	-.00	-.00	.06	**-.26****	--
M	24.78	1.51	67.04	1.20	27.36
SD	16.63	0.40	14.51	0.16	6.92
Range	0-90	0.20-2.26	12.50-100	0.95-1.56	10-45
Skewness	1.07	0.30	-0.77	0.06	-0.05
Kurtosis	1.23	0.26	-0.74	-0.74	-0.02
α	.85	--	.55	.88	.74

Note. *$p < .05$. **$p < .01$. Depression = Psychological Distress – Depression Subscale Score; WSC – Personal = Willingness to See a Counselor – Personal Problems Subscale Score; Emotional Self-Control = Emotional Self-Control Subscale of the Asian American Values Scale – Multidimensional Scale.

Table 9

Descriptive Statistics and Correlations for Post Hoc Stage 2 Gender Differences for Men

Variable	1	2	3	4	5
1. Depression	--				
2. Pain Tolerance	-.11	--			
3. Pain Intensity	.06	**-.23***	--		
4. WSC – Personal	**.23***	.05	-.07	--	
5. Emotional Self-Control	.12	-.16	**.21***	-.17	--
M	23.0	1.60	66.55	1.18	28.89
SD	16.51	0.38	14.06	0.16	6.98
Range	0-70	0.48-2.26	25-92.5	0.95-1.56	10-45
Skewness	0.98	0.36	-0.56	0.27	-0.17
Kurtosis	0.60	-0.14	0.30	-0.66	0.16
α	.86	--	.47	.89	.71

Note. *$p < .05$. Depression = Psychological Distress – Depression Subscale Score; WSC – Personal = Willingness to See a Counselor – Personal Problems Subscale Score; Emotional Self-Control = Emotional Self-Control Subscale of the Asian American Values Scale – Multidimensional Scale.

Table 10

Descriptive Statistics and Correlations for Post Hoc Stage 2 Gender Differences for Women

Variable	1	2	3	4	5
1. Depression	--				
2. Pain Tolerance	**.25***	--			
3. Pain Intensity	-.10	**-.27***	--		
4. WSC – Personal	.02	.03	.02	--	
5. Emotional Self-Control	-.09	.10	-.12	**-.32****	--
M	27.05	1.41	67.66	1.24	25.41
SD	60	0.40	15.13	0.15	6.39
Range	5-90	0.20-2.26	12.50-100	0.95-1.56	11-39
Skewness	1.25	0.38	-1.03	-0.17	-0.05
Kurtosis	2.19	0.92	2.17	-0.53	-0.08
α	.85	--	.65	.88	.73

Note. *$p < .05$. **$p < .01$. Depression = Psychological Distress – Depression Subscale Score; WSC – Personal = Willingness to See a Counselor – Personal Problems Subscale Score; Emotional Self-Control = Emotional Self-Control Subscale of the Asian American Values Scale – Multidimensional Scale.

Post Hoc Analysis Stage 1: Moderated Mediation with Subscales

Hypothesis 11: Higher depressive symptoms will significantly predict less pain tolerance (path a_1). The main effect of depressive symptoms was not statistically significant *(*β = 0.00, p = .62) shown in Table 11.

Hypothesis 12: Higher pain tolerance will significantly predict less willingness to see a counselor for personal problems (path b_1). The main effect of pain tolerance was also not statistically significant (β = 0.01, p = .65).

Hypothesis 13: Higher depressive symptoms will significantly predict more willingness to see a counselor for personal problems (path c_1). The main effect of depressive symptoms was also not statistically significant (β = 0.00, p = .13).

Hypothesis 14: The indirect effect of pain tolerance (path $c_1^{'}$) will be statistically significant and the range of the confidence interval will not contain zero. Support for the indirect effect of pain tolerance was not found, with the 95% bootstrapping confidence intervals including zero (95% CI = [-0.00, 0.00]).

Hypothesis 15a: High emotional self-control will predict less willingness to see a counselor for personal problems (path $c_2^{'}$). The main effect of emotional self-control was statistically significant (β = -0.01, p < .01).

Hypothesis 15b: Depending on the level of emotional self-control, the positive relationship between higher depressive symptoms and willingness to see a counselor for personal problems will change in magnitude, indicated by a statistically significant interaction (path $c_3^{'}$). The results showed a significant amount of variance explained by the model (R^2 = .12, F(5, 159) = 3.59, p < .01). The β coefficient of the interaction of

depressive symptoms and emotional self-control (path c_3') was not statistically significant indicating there was no evidence of a moderation effect ($\beta = 0.00$, $p = .28$). However, depressive symptoms significantly predicted willingness to see a counselor for personal problems for those who hold levels of emotional self-control at one standard deviation above the mean ($t = 2.14$, $p < .05$).

Table 11

Regression Results for Post Hoc Stage 1 with Subscales for Conditional Indirect Effect of Pain Tolerance as Mediator and Emotional Self Control as Moderator

Predictor	*B*	*SE*	*t*	*p*	Bootstrapping BC 95% Lower CI	Upper CI	*R*	R^2	*F*	*p*
	Pain Tolerance						**.23**	**.05**	**5.18**	**.01**
Constant	1.60	0.04	40.25	.00	1.52	1.68				
PD Depression	0.00	0.00	0.50	.62	-0.00	0.01				
Gender	**-0.19**	**0.06**	**-3.14**	**.00**	**-0.31**	**-0.07**				
	Willingness -Personal						**.34**	**.12**	**3.59**	**.00**
Constant	1.17	0.05	24.72	.00	1.08	1.26				
Pain Tolerance	0.01	0.03	0.45	.65	-0.04	0.07				
PD Depression	0.00	0.00	1.53	.13	-0.00	0.00				
Emotional Self-Control	**-0.01**	**0.00**	**-2.56**	**.01**	**-0.01**	**-0.00**				
PD Depression x ESC	0.00	0.00	1.08	.28	-0.00	0.00				
Gender	0.37	0.03	1.45	.15	-0.01	0.09				

Conditional Direct Effect of Depression on Willingness-Personal at ESC = $M \pm 1$ *SD*

	Boot direct effect	Boot *SE*	*t*	*p*	LLCI	ULCI
−1 *SD* (20.37)	0.00	0.00	0.23	.82	-0.00	0.00
M (27.33)	0.00	0.00	1.52	.13	-0.00	0.00
+1 *SD* (34.29)	**0.00**	**0.00**	**2.14**	**.03**	**0.0002**	**0.004**

	Boot indirect effect	Boot *SE*	LLCI	ULCI
Pain Tolerance	0.000	0.000	-0.000	0.000

Note. *SE* = standard error; BC = bias-corrected; CI = confidence interval. **Bolded text indicate *p* < .05**.

Hypothesis 16: Higher depressive symptoms will significantly predict more pain intensity (path a_2). The main effect of depressive symptoms was not statistically significant (β = -0.00, p = .98) shown in Table 12.

Hypothesis 17: Higher pain intensity will significantly predict more willingness to see a counselor for personal problems (path b_2). The main effect of pain intensity was also not statistically significant (β = -0.00, p = .92).

Hypothesis 18: Higher depressive symptoms will significantly predict more willingness to see a counselor for personal problems (path c_2). The main effect of depressive symptoms was also not statistically significant (β = -0.00, p = .52).

Hypothesis 19: The indirect effect (path $c_4^{'}$) will be statistically significant and the range of the confidence interval will not contain zero. Support for the indirect effect of pain intensity was not found, with the 95% bootstrapping confidence intervals including zero (95% CI = [-0.00, 0.00]).

Hypothesis 20a: High emotional self-control will predict less willingness to see a counselor for personal problems (path $c_5^{'}$). The main effect of emotional self-control was statistically significant (β = -0.01, p < .05).

Hypothesis 20b: Depending on the level of emotional self-control, the positive relationship between higher depressive symptoms and willingness to see a counselor for personal problems will change in magnitude, indicated by a statistically significant interaction (path $c_6^{'}$). The results showed a significant amount of variance explained by the model (R^2 = .12, F(5, 159) = 3.57, p < .01). The β coefficient of the interaction of depressive symptoms and emotional self-control (path $c_3^{\prime}$) was not statistically significant indicating there was no evidence of a moderation effect (β = 0.00, p = .28). However,

higher depressive symptoms significantly predicted more willingness to see a counselor for personal problems for those who had levels of emotional self-control at one standard deviation above the mean ($t = 2.12$, $p < .05$).

Table 12

Regression Results for Post Hoc Stage 1 with Subscales for Conditional Indirect Effect of Pain Intensity as Mediator and Emotional Self Control as Moderator

Predictor	*B*	*SE*	*t*	*p*	Bootstrapping BC 95% Lower CI	Upper CI	*R*	R^2	*F*	*p*
	Pain Intensity						.03	.00	0.09	.91
Constant	66.46	2.27	29.24	.00	61.97	70.94				
Depression	-0.00	0.07	-0.02	.98	-0.14	0.14				
Gender	0.98	2.29	0.43	.67	-3.54	5.51				
	Willingness -Personal						**.34**	**.12**	**3.57**	**.00**
Constant	1.42	0.12	11.40	.00	1.17	1.66				
Pain Intensity	-0.00	0.00	-0.11	.92	-0.00	0.00				
Depression	-0.00	0.00	-0.65	.52	-0.01	0.01				
Emotional Self-Control	**-0.01**	**0.004**	**-2.28**	**.02**	**-0.017**	**-0.001**				
Depression x ESC	0.00	0.00	1.08	.28	-0.00	0.00				
Gender	0.03	0.02	1.37	.17	-0.02	0.08				

Conditional direct effect of Depression on Willingness-Personal at ESC = $M \pm 1$ *SD*

	Boot direct effect	Boot *SE*	*t*	*p*	LLCI	ULCI
−1 *SD* (20.37)	0.00	0.00	0.25	.80	-0.00	0.00
M (27.33)	0.00	0.00	1.54	.12	-0.00	0.00
+1 *SD* (34.29)	**0.00**	**0.00**	**2.12**	**.04**	**0.0002**	**0.005**

	Boot indirect effect	Boot *SE*	LLCI	ULCI
Pain Intensity	0.000	0.000	-0.000	0.000

Note. *SE* = standard error; BC = bias-corrected; CI = confidence interval. **Bolded text indicate *p* < .05**.

Post Hoc Analysis Stage 1: Moderation

Hypothesis 11: Higher frequency of depressive symptoms will significantly predict more willingness to see a counselor for personal problems (path d_1). The main effect of depressive symptoms was not statistically significant (β = 0.00, p = .75) shown in Table 13.

Hypothesis 12: Higher pain tolerance will significantly predict less willingness to see a counselor for personal problems (path d_2). The main effect of pain tolerance was also not statistically significant (β = -0.72, p = .15).

Hypothesis 13: Higher emotional self-control will predict less willingness to see a counselor for personal problems (path d_3). The main effect of emotional self-control was statistically significant (β = -0.01, p < .01).

Hypothesis 14: Pain tolerance will moderate the positive relationship between depressive symptoms and willingness to see a counselor for personal problems. Depending on the level of pain tolerance, the relationship between higher depressive symptoms and more willingness to see a counselor for personal problems will change in magnitude, indicated by a statistically significant interaction (path d_4). The results showed a significant amount of variance explained by the model (R^2 = .13, F(5, 159) = 4013, p < .01). The β coefficient of the interaction of depressive symptoms and pain tolerance (path d_4) was not statistically significant indicating there was no evidence of a moderation effect (β = 0.00, p = .16).

Hypothesis 15: Higher emotional self-control will moderate the relationship between depressive symptoms and willingness to see a counselor for personal problems. Depending on the level of emotional self-control, the positive relationship between higher

depressive symptoms and willingness to see a counselor for personal problems will change in magnitude, indicated by a statistically significant interaction (path d_5). Contrary to my hypotheses, the β coefficient of the interaction of depressive symptoms and emotional self-control (path d_5) was not statistically significant indicating there was no evidence of a moderation effect ($\beta = 0.00$, $p = .14$).

Table 13

Regression Results for Post Hoc Stage 1 with Subscales for Testing Moderation of Emotional Self-Control and Pain Tolerance on the Relationship between Depression and Willingness to See a Counselor for Personal Problems

Variables	β	*SE*	*t*	*p*	95% CI (Lower, Higher)	*R*	R^2	*F*	*p*
						.36	**.13**	**4.13**	**.00**
Constant	1.29	0.12	10.74	.00	1.05, 1.52				
Pain Tolerance	0.72	0.05	1.41	.15	-0.03, 0.17				
PD Depression	0.00	0.00	0.32	.75	-0.01, 0.01				
PD Dep x PT	-0.00	0.00	-1,41	.16	-0.01, 0.00				
Emotional Self-Control	**-0.01**	**0.00**	**-3.04**	**.00**	**-0.01, -0.00**				
PD Dep x ESC	0.00	0.00	1.49	.14	0.00, 0.00				
Gender	0.04	0.02	1.63	.10	-0.01, 0.09				

ΔR^2 due to interaction	ΔR^2	*F*	*p*
PD Dep x PT	.01	1.99	.16
PD Dep x ESC	.01	2.23	.14
PD Dep x ESC x PT	.02	2.26	.11

Note. CI = confidence interval. **Bolded text indicate *p* < .05**.

Conditional Effect of Depression on Willingness to See a Counselor for Personal Problems at Values of the Moderators, Emotional Self-Control and Pain Tolerance

Moderator 1	**Moderator 2**	***B***	***SE***	***t***	***p***	**Lower CI**	**Upper CI**
ESC	Pain Tolerance						
−1 *SD* (20.37)	−1 *SD* (1.11)	0.00	0.00	1.18	.24	-0.00	0.00
−1 *SD* (20.37)	*M* (1.52)	0.00	0.00	0.58	.56	-0.00	0.00
−1 *SD* (20.37)	+1 *SD* (1.92)	-0.00	0.00	-0.33	.74	-0.00	0.00
***M* (27.33)**	**−1 *SD* (1.11)**	**0.00**	**0.00**	**2.37**	**.02**	**0.00**	**0.00**
***M* (27.33)**	***M* (1.52)**	**0.00**	**0.00**	**2.20**	**.03**	**0.00**	**0.00**
M (27.33)	+1 *SD* (1.92)	0.00	0.00	0.70	.49	-0.00	0.00
+1 *SD* (34.29)	**−1 *SD* (1.11)**	**0.00**	**0.00**	**2.91**	**.00**	**0.00**	**0.01**
+1 *SD* (34.29)	***M* (1.52)**	**0.00**	**0.00**	**2.71**	**.01**	**0.00**	**0.00**
+1 *SD* (34.29)	+1 *SD* (1.92)	0.00	0.00	1.45	.15	-0.00	0.00

Note. **Bolded text indicate *p* < .05**.

Hypothesis 16: Higher frequency of depressive symptoms will significantly predict more willingness to see a counselor for personal problems (path d_6). The main effect of depressive symptoms was statistically significant (β = -0.01, $p < .05$) shown in Table 14.

Hypothesis 17: Higher pain intensity will significantly predict higher willingness to see a counselor for personal problems (path d_7). The main effect of pain intensity was not statistically significant (β = -0.00, p = .11).

Hypothesis 18: Higher emotional self-control will predict less willingness to see a counselor (path d_8). The main effect of emotional self-control was statistically significant (β = -0.01, $p < .01$).

Hypothesis 19: Pain intensity will moderate the positive relationship between depressive symptoms and willingness to see a counselor for personal problems. Depending on the level of pain intensity, the relationship between depressive symptoms and willingness to see a counselor for personal problems will change in magnitude, indicated by a statistically significant interaction (path d_9). The results showed a significant amount of variance explained by the model (R^2 = .14, $F(5, 159) = 4.42$, $p < .01$). The β coefficient of the interaction of depressive symptoms and pain intensity (path d_9) was not statistically significant (β = 0.00, p = .06). However, higher depressive symptoms significantly predicted more willingness to see a counselor for personal problems for those who had mean levels of emotional self-control and pain intensity at the mean (t = 2.37, $p < .05$) and one standard deviation above the mean (t = 2.77, $p < .05$); and levels of emotional self-control at one standard deviation above the mean and

pain intensity at the mean ($t = 2.81$, $p < .05$) and one standard deviation above the mean ($t = 3.23$, $p < .01$).

Hypothesis 20: Higher emotional self-control will moderate the relationship between depressive symptoms and willingness to see a counselor. Depending on the level of emotional self-control, the positive relationship between higher depressive symptoms and willingness to see a counselor for personal problems will change in magnitude, indicated by a statistically significant interaction (path d_{10}). Contrary to my hypotheses, the β coefficient of the interaction of depressive symptoms and emotional self-control (path d_{10}) was not statistically significant indicating there was no evidence of a moderation effect ($\beta = 0.00$, $p = .14$)

Table 14

Regression Results for Post Hoc Stage 1 with Subscales for Testing Moderation of Emotional Self-Control and Pain Intensity on the Relationship between Depression and Willingness to See a Counselor for Personal Problems

Variables	β	*SE*	*t*	*p*	95% CI (Lower, Higher)	*R*	R^2	*F*	*p*
						.37	**.14**	**4.42**	**.00**
Constant	1.54	0.12	13.14	.00	1.31, 1.77				
Pain Intensity	-0.00	0.00	-1.62	.11	-0.00, 0.00				
Depression	**-0.01**	**0.00**	**-2.08**	**.04**	**-0.02, -0.00**				
Dep x PI	0.00	0.00	1.93	.06	0.00, 0.00				
Emotional Self-Control	**-0.01**	**0.00**	**-3.04**	**.00**	**-0.01, -0.00**				
Dep x ESC	0.00	0.00	1.47	.14	0.00, 0.00				
Gender	0.04	0.02	1.48	.14	-0.01, 0.08				

ΔR^2 due to interaction	ΔR^2	*F*	*p*
Dep x PI	.02	3.71	.06
Dep x ESC	.01	2.16	.14
Dep x ESC x PI	**.03**	**3.09**	**.048**

Note. CI = confidence interval. **Bolded text indicate *p* < .05**.

Conditional Effect for Post Hoc Stage 1 with Subscales of Depression on Willingness to See a Counselor for Personal Problems at Values of the Moderators, Emotional Self-Control and Pain Intensity

Moderator 1	**Moderator 2**	***B***	***SE***	***t***	***p***	**Lower CI**	**Upper CI**
ESC	Pain Intensity						
−1 *SD* (20.37)	−1 *SD* (52.32)	-0.00	0.00	-0.54	.59	-0.00	0.00
−1 *SD* (20.37)	*M* (66.86)	0.00	0.00	0.72	.47	-0.00	0.00
−1 *SD* (20.37)	+1 *SD* (81.39)	0.00	0.00	1.56	.12	-0.00	0.00
M (27.33)	−1 *SD* (52.32)	0.00	0.00	0.42	.67	-0.00	0.00
***M* (27.33)**	***M* (66.86)**	**0.00**	**0.00**	**2.37**	**.02**	**0.00**	**0.00**
***M* (27.33)**	**+1 *SD* (81.39)**	**0.00**	**0.00**	**2.77**	**.01**	**0.00**	**0.01**
+1 *SD* (34.29)	−1 *SD* (52.32)	0.00	0.00	1.22	.23	-0.00	0.00
+1 *SD* (34.29)	***M* (66.86)**	**0.00**	**0.00**	**2.81**	**.01**	**0.00**	**0.00**
+1 *SD* (34.29)	**+1 *SD* (81.39)**	**0.00**	**0.00**	**3.23**	**.00**	**0.00**	**0.01**

Note. **Bolded text indicate *p* < .05**.

Post Hoc Analysis Stage 1: Results Summary Using Subscales

When I tested the moderated mediation model focusing on depressive symptoms and emotional self-control, gender only predicted pain tolerance with women having lower pain tolerance than men. Gender did not predict pain intensity, however. In both moderated mediation models in which pain tolerance and pain intensity were mediators and emotional self-control was a moderator, higher emotional self-control negatively predicted willingness to see a counselor for personal problems. Emotional self-control consists of beliefs that emphasize holding in one's emotions and viewing emotion restriction as a strength (Kim, Li, & Ng, 2005). The more that individuals viewed holding in one's emotions as positive, the less willing they were to seek counseling for personal problems. Additionally, although the interaction term for depressive symptoms and emotional self-control was not statistically significant in the pain tolerance or pain intensity models, at one standard deviation above the mean of emotional self-control, higher depressive symptoms predicted more willingness to see a counselor for personal problems.

The moderation models were tested using depressive symptoms as the predictor and emotional self-control and pain tolerance or pain intensity (separately) as moderators. In the moderation model with pain tolerance, those who viewed emotional self-control positively were less willing to see a counselor for personal problems. Although the interaction terms for depressive symptoms and pain tolerance and emotional self-control separately were not statistically significant, there was a trend: at average and high levels of emotional self-control and low and average levels of pain tolerance, higher depressive symptoms predicted more willingness to see a counselor for personal problems. In the

moderation model examining pain intensity as one of the moderators, higher depressive symptoms and higher adherence to viewing emotional self-control positively significantly predicted less willingness to see a counselor for personal problems. Although the interaction between depressive symptoms and adherence to emotional self-control and pain intensity were not statistically significant, there was a similar trend to the analyses involving pain tolerance: at average and high levels of emotional self-control and average and high levels of pain intensity, higher depressive symptoms predicted more willingness to see a counselor for personal problems.

Post Hoc Analysis Stage 2: Moderated Mediation By Gender

Hypothesis 21: Higher depressive symptoms will significantly predict less pain tolerance for men and women (path a_1). The main effect of depressive symptoms was not statistically significant for men (β = -0.00, p = .28). However, the main effect for depressive symptoms was statistically significant for women (β = 0.01, $p < .05$) but in the opposite direction shown in Tables 15 and 16.

Hypothesis 22: Higher pain tolerance will significantly predict less willingness to see a counselor for personal problems for men and women (path b_1). The main effect of pain tolerance was also not statistically significant for men (β = 0.02, p = .61) and women (β = 0.03, p = .55).

Hypothesis 23: Higher depressive symptoms will significantly predict more willingness to see a counselor for personal problems for men and women (path c_1). The

main effect of depressive symptoms was also not statistically significant for men (β = 0.00, p = .89) and women (β = -0.00, p = .55).

Hypothesis 24: The indirect effect of pain tolerance (path $c_1^{'}$) will be statistically significant and the range of the confidence interval will not contain zero for men and women. Support for the indirect effect of pain tolerance was not found, with the 95% bootstrapping confidence intervals including zero for men (95% CI = [-0.00, 0.00]) and women (95% CI = [-0.00, 0.00]).

Hypothesis 25a: High emotional self-control will predict less willingness to see a counselor for personal problems for men and women (path $c_2^{'}$). The main effect of emotional self-control was also not statistically significant for men (β = -0.00, p = .10) and women (β = -0.01, p = .06).

Hypothesis 25b: Depending on the level of emotional self-control, the positive relationship between higher depressive symptoms and willingness to see a counselor for personal problems will change in magnitude, indicated by a statistically significant interaction for men and women (path $c_3^{'}$). The results showed a significant amount of variance explained by the model for men (R^2 = .10, F(5, 92) = 2.66, p < .05) but not for women (R^2 = .11, F(4, 72) = 2.16, p = .08). The β coefficient of the interaction of depressive symptoms and emotional self-control (path c_3') was not statistically significant indicating there was no evidence of a moderation effect for men (β = 0.00, p = .48) and women (β = 0.00, p = .57). However, in the sample of men, depressive symptoms significantly predicted willingness to see a counselor for personal problems for those who hold levels of emotional self-control at the mean (t = 2.34, p < .05) and one standard deviation above the mean (t = 2.54, p < .05).

Table 15

Regression Results for Post Hoc Stage 2 Gender Differences for Conditional Indirect Effect of Pain Tolerance as Mediator and Emotional Self Control as Moderator for Men

Predictor	*B*	*SE*	*t*	*p*	Bootstrapping BC 95% Lower CI	Upper CI	*R*	R^2	*F*	*p*
	Pain Tolerance						.11	.01	1.20	.28
Constant	1.66	0.07	24.72	.00	1.52	1.79				
Depression	-0.00	0.00	-1.10	.28	-0.01	0.00				
	Willingness -Personal						**.32**	**.10**	**2.66**	**.04**
Constant	1.29	0.15	8.69	.00	1.00	1.58				
Pain Tolerance	0.02	0.04	0.51	.61	-0.07	0.10				
Depression	-0.00	0.00	-0.14	.89	-0.01	0.01				
Emotional Self-Control	-0.01	0.00	-1.68	.10	-0.01	0.00				
Depression x ESC	0.00	0.00	0.72	.48	-0.00	0.00				

Note. **Bolded text indicate $p < .05$**.

	Conditional direct effect of Dep on WSC-PP at ESC = $M \pm 1$ *SD*					
	Boot direct effect	Boot *SE*	*t*	*p*	LLCI	ULCI
−1 *SD* (21.89)	0.00	0.00	1.00	.32	-0.00	0.00
***M* (28.90)**	**0.002**	**0.001**	**2.34**	**.02**	**0.0004**	**0.004**
+1 *SD* (35.91)	**0.003**	**0.001**	**2.54**	**.01**	**0.0007**	**0.005**

	Boot indirect effect	Boot *SE*	LLCI	ULCI
Pain Tolerance	-0.00	0.00	-0.00	0.00

Note. *SE* = standard error; BC = bias-corrected; CI = confidence interval. **Bolded text indicate $p < .05$**.

Table 16

Regression Results for Post Hoc Stage 2 Gender Differences for Conditional Indirect Effect of Pain Tolerance as Mediator and Emotional Self Control as Moderator for Women

Predictor	*B*	*SE*	*t*	*p*	Bootstrapping BC 95% Lower CI	Upper CI	*R*	R^2	*F*	*p*
	Pain Tolerance						**.23**	**.05**	**4.36**	**.04**
Constant	1.26	0.09	14.43	.00	1.08	1.43				
Depression	**0.01**	**0.00**	**2.09**	**.04**	**.00**	**.01**				
	Willingness -Personal						.33	.11	2.16	.08
Constant	1.46	0.14	10.46	.00	1.19	1.74				
Pain Tolerance	0.03	0.00	0.60	.55	-0.06	0.11				
Depression	-0.00	0.00	-0.60	.55	-0.01	0.01				
Emotional Self-Control	-0.01	0.01	-1.94	.06	-0.02	0.00				
Depression x ESC	0.00	0.00	0.58	.57	-0.00	0.00				

Note. **Bolded text indicate $p < .05$**.

	Conditional direct effect of Dep on WSC-PP at ESC = $M \pm 1$ *SD*					
	Boot direct effect	Boot *SE*	*t*	*p*	LLCI	ULCI
−1 *SD* (18.94)	-0.00	0.00	-0.49	.63	-0.00	0.00
M (25.34)	0.00	0.00	-0.04	.97	-0.00	0.00
+1 *SD* (31.73)	0.00	0.00	0.34	.74	-0.00	0.00

	Boot indirect effect	Boot *SE*	LLCI	ULCI
Pain Tolerance	0.00	0.00	-0.00	0.00

Note. *SE* = standard error; BC = bias-corrected; CI = confidence interval.

Hypothesis 26: Higher depressive symptoms will significantly predict more pain intensity for men and women (path a_2). The main effect of depressive symptoms was not statistically significant for men *(*β = 0.05*, p* = .53) and women (β = -0.07*, p* =.54) shown in Table 17 and 18.

Hypothesis 27: Higher pain intensity will significantly predict more willingness to see a counselor for personal problems for men and women (path b_2). The main effect of pain intensity was also not statistically significant for men (β = -0.00, *p* = .81) and women (β = -0.00, *p* = .84).

Hypothesis 28: Higher depressive symptoms will significantly predict more willingness to see a counselor for personal problems for men and women (path c_2). The main effect of depressive symptoms was also not statistically significant for men (β = -0.00, *p* = .88) and women (β = -0.00, *p* = .69).

Hypothesis 29: The indirect effect (path $c_4^{'}$) will be statistically significant and the range of the confidence interval will not contain zero for men and women. Support for the indirect effect of pain tolerance was not found, with the 95% bootstrapping confidence intervals including zero for men (95% CI = [-0.00, 0.00]) and women (95% CI = [-0.00, 0.00]).

Hypothesis 30a: High emotional self-control will predict less willingness to see a counselor for personal problems or men and women (path $c_5^{'}$). The main effect of emotional self-control was also not statistically significant for men (β = -0.01, *p* = .10) and women (β = -0.01, *p* = .12).

Hypothesis 30b: Depending on the level of emotional self-control, the positive relationship between higher depressive symptoms and willingness to see a counselor for

personal problems will change in magnitude, indicated by a statistically significant interaction for men and women (path $c_6^{'}$). The results showed a significant amount of variance explained by the model for men (R^2 = .10, F(5, 92) = 2.60, p < .05) but not for women (R^2 = .11, F(4, 72) = 1.50, p = .21). The β coefficient of the interaction of depressive symptoms and emotional self-control (path c_3') was not statistically significant indicating there was no evidence of a moderation effect for men (β = 0.00, p = .48) and women (β = 0.00, p = .65). However, in the sample of men, higher depressive symptoms significantly predicted more willingness to see a counselor for personal problems for those who had levels of emotional self-control at the mean (t = 2.31, p < .05) and one standard deviation above the mean (t = 2.51, p < .05).

Table 17

Regression Results for Post Hoc Stage 2 Gender Differences for Conditional Indirect Effect of Pain Intensity as Mediator and Emotional Self-Control as Moderator for Men

Predictor	*B*	*SE*	*t*	*p*	Bootstrapping BC 95% Lower CI	Upper CI	*R*	R^2	*F*	*p*
	Pain Intensity						.06	.00	0.40	.53
Constant	65.17	2.46	26.54	.00	60.30	70.05				
Depression	0.05	0.09	0.63	.53	-0.12	0.23				
	Willingness -Personal						**.32**	**.10**	**2.60**	**.04**
Constant	1.34	0.13	10.24	.00	1.09	1.61				
Pain Intensity	-0.00	0.00	-0.24	.81	-0.00	0.00				
Depression	-0.00	0.00	-0.15	.88	-0.01	0.00				
Emotional Self-Control	-0.01	0.00	-1.67	.10	-0.02	0.00				
Depression x ESC	0.00	0.00	0.72	.48	-0.00	0.00				

Note. **Bolded text indicate $p < .05$**.

	Conditional direct effect of Dep on WSC-PP at ESC = $M \pm 1$ *SD*					
	Boot direct effect	Boot *SE*	*t*	*p*	LLCI	ULCI
−1 *SD* (21.89)	0.00	0.00	0.98	.33	-0.00	0.00
***M* (28.90)**	**0.00**	**0.00**	**2.31**	**.02**	**0.00**	**0.00**
+1 *SD* (35.91)	**0.00**	**0.00**	**2.51**	**.01**	**0.00**	**0.01**

	Boot indirect effect	Boot *SE*	LLCI	ULCI
Pain Intensity	0.00	0.00	-0.00	0.00

Note. *SE* = standard error; BC = bias-corrected; CI = confidence interval. **Bolded text indicate $p < .05$**.

Table 18

Regression Results for Post Hoc Stage 2 Gender Differences for Conditional Indirect Effect of Pain Intensity as Mediator and Emotional Self Control as Moderator for Women

Predictor	*B*	*SE*	*t*	*p*	Bootstrapping BC 95% Lower CI	Upper CI	*R*	R^2	*F*	*p*
	Pain Intensity						.08	.01	0.37	.54
Constant	69.42	3.97	17.49	.00	61.51	77.33				
Depression	-0.07	0.12	-0.61	.54	-0.32	0.17				
	Willingness -Personal						.32	.10	1.50	.21
Constant	1.52	0.19	8.06	.00	1.14	1.89				
Pain Intensity	-0.00	0.00	-0.20	.84	-0.00	0.00				
Depression	-0.00	0.01	-0.41	.69	-0.01	0.01				
Emotional Self-Control	-0.01	0.01	-1.57	.12	-0.02	0.00				
Depression x ESC	0.00	0.00	0.46	.65	-0.00	0.00				

	Conditional direct effect of Dep on WSC-PP at ESC = $M \pm 1$ *SD*					
	Boot direct effect	Boot *SE*	*t*	*p*	LLCI	ULCI
−1 *SD* (18.94)	-0.00	0.00	-0.24	.81	-0.00	0.00
M (25.34)	0.00	0.00	0.06	.95	-0.00	0.00
+1 *SD* (31.73)	0.00	0.00	0.40	.69	-0.00	0.00

	Boot indirect effect	Boot *SE*	LLCI	ULCI
Pain Intensity	0.00	0.00	-0.00	0.00

Note. *SE* = standard error; BC = bias-corrected; CI = confidence interval.

Post Hoc Analysis Stage 2: Moderation by Gender

Hypothesis 21: Higher frequency of depressive symptoms will significantly predict more willingness to see a counselor for personal problems for men and women (path d_1). The main effect of depressive symptoms was not statistically significant for men *(*β = -0.00*, p* = .83) and women (β = 0.01*, p* = .17) shown in Table 19 and 20.

Hypothesis 22: Higher pain tolerance will significantly predict less willingness to see a counselor for personal problems for men and women (path d_2). The main effect of pain tolerance was also not statistically significant for men (β = -0.00, *p* = .96). However, the main effect of pain tolerance was statistically significant for women (β = 0.21, *p* < .05) but in the opposite direction contrary to prediction.

Hypothesis 23: Higher emotional self-control will predict less willingness to see a counselor for personal problems for men and women (path d_3). The main effect of emotional self-control was not statistically significant for men (β = -0.01, *p* = .25) and women (β = -0.01, *p* = .06).

Hypothesis 24: Pain tolerance will moderate the positive relationship between depressive symptoms and willingness to see a counselor for personal problems. Depending on the level of pain tolerance, the relationship between higher depressive symptoms and more willingness to see a counselor for personal problems will change in magnitude, indicated by a statistically significant interaction for men and women (path d_4). The results showed a significant amount of variance explained by the model for women (R^2 = .18, *F*(5, 71) = 3.32, *p* < .05) but not for men (R^2 = .10, *F*(5, 92) = 1.50, *p* = .16). The β coefficient of the interaction of depressive symptoms and pain tolerance (path d_4) was statistically significant indicating there was a moderation effect for women

(ΔR^2= .08, F = 4.15, p < .05). In the sample of women, higher depressive symptoms significantly predicted more willingness to see a counselor for personal problems for those who had mean levels of emotional self-control and one standard deviation below the mean levels of pain tolerance (t = 2.10, p < .05).

Hypothesis 25: Higher emotional self-control will moderate the relationship between depressive symptoms and willingness to see a counselor for personal problems. Depending on the level of emotional self-control, the positive relationship between higher depressive symptoms and willingness to see a counselor for personal problems will change in magnitude, indicated by a statistically significant interaction for men and women (path d_5). Contrary to my hypotheses, the β coefficient of the interaction of depressive symptoms and emotional self-control (path d_5) was not statistically significant indicating there was no evidence of a moderation effect for men (β = 0.00, p = .64) and women (β = 0.00, p = .56).

Table 19

Regression Results for Post Hoc Stage 2 Gender Differences for Testing Moderation of AAVS and Pain Tolerance on the Relationship between Depression and Willingness to See a Counselor for Personal Problems for Men

Variables	β	*SE*	*t*	*p*	95% CI (Lower, Higher)	*R*	R^2	*F*	*p*
						.32	.10	1.63	.16
Constant	1.32	0.21	6.24	.00	0.90, 1.74				
Pain Tolerance	0.00	0.09	0.05	.96	-0.17, 0.18				
Depression	-0.00	0.01	-0.21	.83	-0.02, 0.02				
Dep x PT	0.00	0.00	0.20	.84	-0.01, 0.01				
ESC	-0.01	0.01	-1.17	.25	-0.02, 0.00				
Dep x ESC	0.00	0.00	0.47	.64	-0.00, 0.00				

ΔR^2 due to interaction	ΔR^2	*F*	*p*
Dep x PT	.00	0.04	.84
Dep x ESC	.01	0.22	.64
Dep x ESC x PT	.01	0.12	.89

Note. CI = confidence interval.

Conditional Effect for Post Hoc Stage 2 Gender Differences of Depression on Willingness to See a Counselor for Personal Problems at Values of the Moderators, Emotional Self-Control and Pain Tolerance for Men

Moderator 1	**Moderator 2**	***B***	***SE***	***t***	***p***	**Lower CI**	**Upper CI**
ESC	Pain Tolerance						
−1 *SD* (21.89)	−1 *SD* (1.21)	0.00	0.00	0.58	.57	-0.00	0.01
−1 *SD* (21.89)	*M* (1.60)	0.00	0.00	0.80	.42	-0.00	0.01
−1 *SD* (21.89)	+1 *SD* (1.98)	0.00	0.00	0.66	.51	-0.00	0.01
M (28.90)	−1 *SD* (1.21)	0.00	0.00	1.54	.13	-0.00	0.00
M (28.90)	*M* (1.60)	0.00	0.00	1.90	.06	-0.00	0.00
M (28.90)	+1 *SD* (1.98)	0.00	0.00	1.02	.31	-0.00	0.01
+1 *SD* (35.91)	−1 *SD* (1.21)	0.00	0.00	1.48	.14	-0.00	0.01
+1 *SD* (35.91)	*M* (1.60)	0.00	0.00	1.54	.13	-0.00	0.01
+1 *SD* (35.91)	+1 *SD* (1.98)	0.00	0.00	1.07	.29	-0.00	0.01

Table 20

Regression Results for Post Hoc Stage 2 Gender Differences for Testing Moderation of Emotional Self-Control and Pain Tolerance on the Relationship between Depression and Willingness to See a Counselor for Personal Problems for Women

Variables	**β**	***SE***	***t***	***p***	**95% CI (Lower, Higher)**	***R***	R^2	***F***	***p***
						.43	**.18**	**3.32**	**.01**
Constant	1.21	0.17	6.97	.00	0.86, 1.55				
Pain Tolerance	**0.21**	**0.09**	**2.23**	**.02**	**0.03, 0.39**				
Depression	0.01	0.00	1.38	.17	-0.00, 0.02				
Dep x PT	**-0.01**	**0.00**	**-2.04**	**.04**	**-0.01, -0.00**				
ESC	-0.01	0.01	-1.94	.06	-0.02, 0.00				
Dep x ESC	0.00	0.00	0.59	.56	-0.00, 0.00				

ΔR^2 due to interaction	ΔR^2	*F*	*p*
Dep x PT	**.08**	**4.15**	**.04**
Dep x ESC	.00	0.35	.56
Dep x ESC x PT	.09	2.08	.13

Note. CI = confidence interval. **Bolded text indicate *p* < .05**.

Conditional Effect for Post Hoc Stage 2 Gender Differences of Depression on Willingness to See a Counselor for Personal Problems at Values of the Moderators, Emotional Self-Control and Pain Tolerance for Women

Moderator 1	**Moderator 2**	***B***	***SE***	***t***	***p***	**Lower CI**	**Upper CI**
ESC	Pain Tolerance						
−1 *SD* (18.94)	−1 *SD* (1.01)	0.00	0.00	1.70	.09	-0.00	0.01
−1 *SD* (18.94)	*M* (1.42)	0.00	0.00	0.19	.85	-0.00	0.00
−1 *SD* (18.94)	+1 *SD* (1.82)	-0.00	0.00	-1.05	.30	-0.01	0.00
***M* (25.34)**	**−1 *SD* (1.01)**	**0.00**	**0.00**	**2.10**	**.04**	**0.00**	**0.01**
M (25.34)	*M* (1.42)	0.00	0.00	0.85	.40	-0.00	0.00
M (25.34)	+1 *SD* (1.82)	-0.00	0.00	-0.92	.36	-0.00	0.00
+1 *SD* (31.73)	−1 *SD* (1.01)	0.00	0.00	1.79	.08	-0.00	0.01
+1 *SD* (31.73)	*M* (1.42)	0.00	0.00	0.93	.35	-0.00	0.00
+1 *SD* (31.73)	+1 *SD* (1.82)	-0.00	0.00	-0.45	.66	-0.00	0.00

Note. **Bolded text indicate *p* < .05**.

Hypothesis 26: Higher frequency of depressive symptoms will significantly predict more willingness to see a counselor for personal problems for men and women (path d_6). The main effect of depressive symptoms was not statistically significant for men (β = -0.01, p = .22) and women (β = -0.00, p = .53) shown in Table 21 and 22.

Hypothesis 27: Higher pain intensity will significantly predict higher willingness to see a counselor for personal problems for men and women (path d_7). The main effect of pain intensity was also not statistically significant for men (β = -0.00, p = .17) and women (β = -0.00, p = .56).

Hypothesis 28: Higher emotional self-control will predict less willingness to see a counselor for men and women (path d_8). The main effect of emotional self-control was not statistically significant for men (β = -0.01, p = .10) and women (β = -0.01, p = .10).

Hypothesis 29: Pain intensity will moderate the positive relationship between depressive symptoms and willingness to see a counselor for personal problems. Depending on the level of pain intensity, the relationship between depressive symptoms and willingness to see a counselor for personal problems will change in magnitude, indicated by a statistically significant interaction for men and women (path d_9). The results showed a significant amount of variance explained by the model for men (R^2 = .12, F(5, 92) = 2.58, p < .05) but not for women (R^2 = .12, F(5, 71) = 1.44, p = .22). In the sample of men, the β coefficient of the interaction of depressive symptoms and pain tolerance (path d_9) was not statistically significant (β = 0.00, p = .13). However, higher depressive symptoms significantly predicted more willingness to see a counselor for personal problems for those who had mean levels of emotional self-control and pain intensity at the mean (t = 2.27, p < .05) and one standard deviation above the mean (t =

2.73, $p < .05$); and levels of emotional self-control at one standard deviation above the mean and pain intensity at the mean ($t = 2.55$, $p < .05$) and one standard deviation above the mean ($t = 2.92$, $p < .01$).

Hypothesis 30: Higher emotional self-control will moderate the relationship between depressive symptoms and willingness to see a counselor. Depending on the level of emotional self-control, the positive relationship between higher depressive symptoms and willingness to see a counselor for personal problems will change in magnitude, indicated by a statistically significant interaction for men and women (path d_{10}). Contrary to my hypotheses, the β coefficient of the interaction of depressive symptoms and emotional self-control (path d_{10}) was not statistically significant indicating there was no evidence of a moderation effect for men ($\beta = 0.00$, $p = .43$) and women ($\beta = 0.00$, $p = .60$).

Table 21

Regression Results for Post Hoc Stage 2 Gender Differences for Testing Moderation of Emotional Self-Control and Pain Intensity on the Relationship between Depression and Willingness to See a Counselor for Personal Problems for Men

Variables	**β**	***SE***	***t***	***p***	**95% CI (Lower, Higher)**	***R***	R^2	***F***	***p***
						.35	**.12**	**2.58**	**.03**
Constant	1.50	0.16	9.11	.00	1.17, 1.82				
Pain Intensity	-0.00	0.00	-1.37	.17	-0.01, 0.00				
Depression	-0.01	0.01	-1.23	.22	-0.02, 0.01				
Dep x PI	0.00	0.00	1.53	.13	0.00, 0.00				
ESC	-0.01	0.00	-1.68	.10	-0.02, 0.00				
Dep x ESC	0.00	0.00	0.80	.43	-0.00, 0.00				

ΔR^2 due to interaction	ΔR^2	*F*	*p*
Dep x PI	.02	2.34	.13
Dep x ESC	.01	0.64	.43
Dep x ESC x PI	.03	1.43	.24

Note. CI = confidence interval. **Bolded text indicate *p* < .05**.

Conditional Effect for Post Hoc Stage 2 Gender Differences of Depression on Willingness to See a Counselor for Personal Problems at Values of the Moderators, Emotional Self-Control and Pain Intensity for Men

Moderator 1	**Moderator 2**	***B***	***SE***	***t***	***p***	**Lower CI**	**Upper CI**
ESC	Pain Intensity						
−1 *SD* (21.89)	−1 *SD* (52.25)	-0.00	0.00	-0.04	.97	-0.00	0.00
−1 *SD* (21.89)	*M* (66.43)	0.00	0.00	0.91	.37	-0.00	0.00
−1 *SD* (21.89)	+1 *SD* (80.60)	0.00	0.00	1.62	.11	-0.00	0.01
M (28.90)	−1 *SD* (52.25)	0.00	0.00	0.51	.611	-0.00	0.00
***M* (28.90)**	***M* (66.43)**	**0.00**	**0.00**	**2.27**	**.03**	**0.00**	**0.00**
***M* (28.90)**	**+1 *SD* (80.60)**	**0.00**	**0.00**	**2.73**	**.01**	**0.00**	**0.01**
+1 *SD* (35.91)	−1 *SD* (52.25)	0.00	0.00	0.99	.32	-0.00	0.00
+1 *SD* (35.91)	***M* (66.43)**	**0.00**	**0.00**	**2.55**	**.01**	**0.00**	**0.01**
+1 *SD* (35.91)	**+1 *SD* (80.60)**	**0.00**	**0.00**	**2.92**	**.00**	**0.00**	**0.01**

Note. **Bolded text indicate *p* < .05**.

Table 22

Regression Results for Post Hoc Stage 2 Gender Differences for Testing Moderation of Emotional Self-Control and Pain Intensity on the Relationship between Depression and Willingness to See a Counselor for Personal Problems for Women

Variables	β	*SE*	*t*	*p*	95% CI (Lower, Higher)	*R*	R^2	*F*	*p*
						.34	.12	1.44	.22
Constant	1.63	0.30	5.40	.00	1.03, 2.24				
Pain Intensity	-0.00	0.00	-0.59	.56	-0.01, 0.00				
Depression	-0.00	0.01	-0.63	.53	-0.03, 0.01				
Dep x PI	0.00	0.00	0.57	.57	-0.00, 0.00				
Emotional Self-Control	-0.01	0.01	-1.65	.10	-0.02, 0.00				
Dep x ESC	0.00	0.00	0.53	.60	-0.00, 0.00				

ΔR^2 due to interaction	ΔR^2	*F*	*p*
Dep x PI	.01	0.33	.57
Dep x ESC	.01	0.28	.60
Dep x ESC x PI	.02	0.24	.79

Note. CI = confidence interval.

Conditional Effect for Post Hoc Stage 2 Gender Differences of Depression on Willingness to See a Counselor for Personal Problems at Values of the Moderators, Emotional Self-Control and Pain Intensity for Women

Moderator 1	**Moderator 2**	***B***	***SE***	***t***	***p***	**Lower CI**	**Upper CI**
ESC	Pain Intensity						
−1 *SD* (18.94)	−1 *SD* (52.35)	-0.00	0.00	-0.40	.67	-0.01	0.00
−1 *SD* (18.94)	*M* (67.40)	-0.00	0.00	-0.07	.94	-0.00	0.00
−1 *SD* (18.94)	+1 *SD* (82.46)	0.00	0.00	0.37	.72	-0.00	0.01
M (25.34)	−1 *SD* (52.35)	-0.00	0.00	-0.20	.84	-0.00	0.00
M (25.34)	*M* (67.40)	0.00	0.00	0.46	.65	-0.00	0.00
M (25.34)	+1 *SD* (82.46)	0.00	0.00	0.73	.47	-0.00	0.01
+1 *SD* (31.73)	−1 *SD* (52.35)	0.00	0.00	0.13	.90	-0.00	0.00
+1 *SD* (31.73)	*M* (67.40)	0.00	0.00	0.74	.46	-0.00	0.00
+1 *SD* (31.73)	+1 *SD* (82.46)	0.00	0.00	0.84	.40	-0.00	0.01

Post Hoc Analysis Stage 2: Results Summary for Gender Differences

Because gender was a statistically significant factor in most of the analyses, I explored the hypothesized moderated mediation and moderation models separately for participants who identified as male and female. Interestingly, analyses showed gender differences. In exploring the moderated mediation model exploring whether pain tolerance or pain intensity were predictors of willingness to see a counselor for personal problems, pain tolerance and pain intensity did not mediate the relationship between depressive symptoms and willingness to see a counselor for personal problems. One statistically significant finding was that at average and high value placed on emotional self-control, men who reported higher depressive symptoms predicted more willingness to see a counselor for personal problems in both models including pain tolerance and pain intensity. Women who reported higher depressive symptoms were significantly more likely to be willing to see a counselor for personal problems when considering pain tolerance as a predictor but not in the case of considering pain intensity.

In exploring the moderated model exploring whether pain tolerance or pain intensity were one of the moderators between depressive symptoms and willingness to see a counselor for personal problems, there were no significant predictors or moderators for men. For women, however, higher pain tolerance predicted more willingness to see a counselor for personal problems, contrary to prediction. Pain tolerance was found to be moderator between depressive symptoms and willingness to see a counselor; the interaction between depressive symptoms and pain tolerance was statistically significant predicting less willingness to see a counselor for personal problems for women. More

specifically, at low pain tolerance and average adherence to viewing emotional self-control positively, women who reported higher depressive symptoms were more willing to see a counselor for personal problems.

In the moderation model with pain intensity, there were no significant predictors or moderators for women. However, the overall model for men was statistically significant although there were no individual statistically significant predictors or moderators. In examining the conditional effect of the moderators, at average and high adherence to emotional self-control and mean and high pain intensity, men who reported higher depressive symptoms were more willing to see a counselor for personal problems.

Table 3

Significant and Unexpected Findings from Primary and Post Hoc Analyses

Moderator	Sample	Significant Findings
Pain intensity	Full Sample	1. PI moderated the relationship between PD-total and WSC-total. • PD X PI significantly predicted more WSC-total. • At high PI (+1SD), regardless of their level of adherence to AAV, higher PD predicted more WSC-total.
Pain Tolerance	Women	2. PT moderated the relationship between Dep and WSC-PP. • In the moderation with 2 moderators models (ESC and PT): o Higher PT predicted more WSC-PP. o Dep X PT predicted less WSC-PP. o Higher ESC predicted less WSC-PP. o When mean ESC (M) and low PT (-1 SD), higher Dep predicted more WSC-PP.
Emotional Self-Control	Full Sample	3. ESC moderated the relationship between Dep and WSC-PP. • In the moderated mediation models for PT and PI: o When high ESC (+1 SD), higher Dep predicted more WSC-PP. • In the moderation with 2 moderators models (ESC and PT; ESC and PI): o Higher Dep predict more WSC-PP when: ▪ Mean and high ESC (M and +1SD) and low and mean PT (-1 SD and M); ▪ Mean and high ESC (M and +1SD) and mean and high PI (M and +1SD).
Emotional Self-Control	Men	4. ESC moderated the relationship between Dep and WSC-PP. • In the moderated mediation models for PT and PI: o When mean and high ESC (M and +1 SD), higher Dep predicted more WSC-PP. • In the moderation with 2 moderators models (ESC and PI): o Higher Dep predict more WSC-PP when: ▪ Mean and high ESC (M and +1SD) and mean and high PI (M and +1SD).
Unexpected Findings		
4. PD was not statistically significantly related to WSC-total. (r = .11, p = .14).		
5. Higher PI predicted less WSC-total (t = -2.48, p < .01) in the moderation analysis.		
6. ESC moderated the relationship between Dep and WSC-PP but AAV did not.		

Note: Asian American Values (AAV); Depressive symptoms (Dep; subscale of PD); Emotional Self-Control (ESC; subscale of Asian American Values); Pain Intensity (PI); Pain Tolerance (PT); Psychological Distress (PD-total score); Willingness to See a Counselor (WSC-total); Willingness to See a Counselor for Personal Problems (WSC-PP; subscale of WSC-total).

Discussion

An Innovative Integrative Conceptual Framework of Asian Americans' Help Seeking

The purpose of this study was to expand the understanding of the underutilization of psychological services in the Asian American population. By integrating research on Asian American mental health and pain tolerance and intensity; this study articulated a new conceptual framework that explained how cultural, physiological, and psychological factors intersect in help-seeking behaviors in Asian American individuals and provided a comprehensive, nuanced picture of barriers to treatment in order to find effective ways to improve mental health service utilization for the Asian American population, a racial group with one of the lowest mental health service utilization rates in the United States (Le Meyer et al., 2009; Sorkin et al., 2011; Sue, Cheng, Saad, & Chu, 2012). With the integration of different research areas, this integrative pain tolerance study of Asian American willingness to seek counseling provides results that disconfirm and confirm prior research. On the one hand, this study disconfirms the translation of Franklin et al.'s (2011) theory of pain tolerance as a mediator in other psychological processes different from risk-taking behaviors and suicidality. This study also showed that pain tolerance and pain intensity operated differently than what was found in Franklin et al.'s (2011) study in that they did not act as mediators between two mental health variables, psychological distress and willingness to see a counselor.

On the other hand, this study confirmed Franklin et al.'s (2011) assertion that pain tolerance and pain intensity play out differently. Franklin et al. found that pain tolerance mediated between risk-taking behaviors and increased suicidality whereas pain intensity

did not. In this study, pain tolerance and pain intensity operated differently. Pain intensity was found to be a moderator between psychological distress and willingness to see a counselor in the full sample while pain tolerance did not. Pain tolerance was found to be a moderator between depressive symptoms and willingness to see a counselor for personal problems for only women. It is interesting to note that pain tolerance was a significant factor in the psychological processes in the current female sample and Franklin et al. (2011)'s sample (70 percent female). This may be the case because pain tolerance might better explain psychological processes in general (suicidality in Franklin et al.'s study or willingness to seek counseling in this study) for women than pain intensity; and might be an especially relevant factor when studying women's psychological help seeking.

Another key aspect of this integration of theories is the support for the mind-body connection in that pain intensity and pain tolerance, physiological factors, were found to moderate the relationship between psychological processes. Empirical evidence that shows how physiological and psychological variables are related provide a different perspective in understanding mental health issues in Asian American individuals. This also highlights the importance of the consideration of the physiological dimension in the help-seeking literature in the Asian American population. Lastly, this also amplified the distinction between the conceptualization of pain in different parts, mainly the sensory-discriminative dimension (Melzack & Casey, 1968) explained by pain tolerance and the affectional-motivational component (Melzack & Casey, 1968), which is explained by

pain intensity. The inclusion of the pain dimension in the help-seeking literature may improve the research community's knowledge of the underutilization problem.

Noteworthy Findings

There were three noteworthy findings involving pain intensity, pain tolerance, and emotional self-control as moderators. First, at high levels of the moderator (Pain Intensity), the positive relationship between psychological distress and willing to see a counselor was greater in magnitude in the full sample; only those individuals who rated the pain stimulus as more painful and reported more psychological distress were more willing to see a counselor (personal, academic/career, and health problems). This finding highlights another factor to consider in understanding mental health service utilization in Asian American individuals, namely, one's sensitivity to physical pain. Individuals who are more sensitive to physical pain are more willing to seek counseling when their psychological distress is high. Conversely, low sensitivity to physical pain might further explain mental health service underutilization in Asian American individuals.

Second, in the post hoc analysis, pain tolerance moderated the relationship between (more specific) depressive symptoms and willingness to see a counselor for personal problems for women; when those with low pain tolerance and average emotional self-control reported higher depressive symptoms, they were more willing to see a counselor for personal problems. Women's level of pain tolerance and adherence to emotional self-control predict their willingness to see a counselor when they are

depressed. Because this did not occur in the male sample, this finding possibly explains differential pathways through which men and women seek mental health services.

Third, emotional self-control moderated the relationship between depressive symptoms and willingness to see a counselor for personal problems in the full sample and the male sample. When individuals in the full sample reported average or high emotional self-control, the view that holding in one's emotions is positive, especially those with low or average pain tolerance or average or high pain intensity, those who reported higher depressive symptoms were more willing to see a counselor for personal problems. When men reported average and high emotional self-control, especially those with average or high pain intensity, those who reported higher depressive symptoms were more willing to see a counselor for personal problems. Thus, adherence to emotional self-control plays a role in the help-seeking process by interacting with pain tolerance and pain intensity to predict willingness to seek counseling. Congruent with the second noteworthy finding, this result also points to gender differences in that pain intensity was more predictive of the help-seeking process for men than pain tolerance. One speculation is that when individuals have high expectations for themselves to hold in their emotions but begin experiencing distress symptoms, this may compel them to seek counseling to find ways to better control (or increase their ability to hold in) their distress symptoms or emotions.

Ultimately, these findings highlight the importance of integrating gender in the conceptualization of how physiological factors interact with psychological processes. Pain intensity was found to be a moderator of psychological processes in men whereas pain tolerance was found to be a moderator of psychological processes in women. Women with lower pain tolerance and average adherence to emotional self-control were

more willing to see a counselor for personal problems when they were more depressed. Men showed a similar trend but for pain intensity; men with higher pain intensity and high adherence to emotional self-control were more willing to see a counselor for personal problems when they were more depressed.

One plausible explanation for these gender differences found in this study is the influence of gender socialization in Asian American populations. Asian American individuals may hold traditional values (i.e., Confucian values that call for designated gender roles; Xia, Do, & Xie, 2013) that alter the ways in which men and women address their mental health and seek help. For example, men who held more strongly that holding in one's emotions was positive were more willing to seek counseling when they reported depressive symptoms; women did not. Men may hold the expectation to be strong and self-controlled and become more concerned when they experience depressive symptoms. This may compel men to seek help to reduce their depressive symptoms to retain their ability to hold in their emotions again. Women have less of an expectation to hold in their emotions so their ability to hold in emotions when they are feeling depressed may be less salient. Therefore, women may seek help for other reasons while men seek help to feel less depressed *in order to be more self-controlled*.

Unexpected findings

What also emerged from this study were three unexpected findings. First, it is worth noting that psychological distress and willingness to see a counselor were not significantly related in majority of the analyses unless moderators, such as emotional self-control, were included in the picture. One possible explanation is that this particular sample might be different from the samples included in prior studies that found this

positive relationship. This also highlights that the assumption that individuals who are in psychological distress will seek psychological services is flawed and may need to be revisited when understanding populations found to underutilize mental health services despite the presence of symptomatology. Alternatively, suppression—when an individual correlation is smaller than the product correlation with other variables or in the opposite direction of the product correlation—might also explain the unexpected finding (Cohen, Cohen, West & Aiken, 2003). Including a suppressor variable can remove error variance and increase the relationship between the independent and criterion variable (Cohen, Cohen, West & Aiken, 2003). Thus, suppression effects are not necessarily a limitation of this study per se but do not fully explain the regression model.

Interestingly, contrary to prediction, higher pain intensity, reporting higher pain ratings to the pain stimulus, predicted less willing to see a counselor in the moderation analysis including Asian American values. This might be explained by adherence to Asian American values, such as emotional self-control. Asian American individuals who value the suppression of emotions may translate that value into how they manage their physical pain, by enduring rather than address it. This supports the hypothesis that specific Asian American values, in this case, emotional self-control can act as a barrier to seeking mental health services. Another possible explanation is that when pain intensity is isolated, individuals might not see a connection between the experience of physical pain and addressing psychological concerns; psychological distress and physical pain may be viewed as separate entities. When psychological distress is introduced into the picture, the dynamic changes in that higher pain intensity and psychological distress

predict more willingness to see a counselor. This interesting finding supports the distinction between emotional and physical pain found in Woo et al. (2014).

Third, emotional self-control was found to moderate the relationship between depressive symptoms and willingness to see a counselor for personal problems but not when all of the Asian American cultural values were included (collectivism, conformity to norms, emotional self-control, family recognition through achievement, and humility). This may be because emotional self-control is a value that is more closely associated to psychological processes unlike the other values. For example, collectivism and conformity to norms are more focused on social interactions and one's place in relation to a group and less focused on emotions.

Limitations

Although the present study has practical applicability in addressing the mental health service underutilization problem in the Asian American population, there exist limitations. In terms of negative effects on generalizability, characteristics of underrepresented ethnicities and age groups such as older adults were not taken into account in this sample, which limited the generalizability of the results to the entire racial group. Another limitation was the use of convenience sampling methods for recruitment, which could also account for less generalizability.

In addition, pain tolerance, total psychological distress, and the willingness to see a counselor total score violated normality and the homogeneity of variance assumptions. Non-normal distribution can create a risk for a Type I error, a false positive (Lomax & Hahs-Vaughn, 2007). These variables were transformed by taking the inverse log of the

y-x relationship, which dramatically corrected for assumption violations. Additionally, ceiling effects were found in pain tolerance because of the cutoff time for safety purposes. However, pain tolerance, even after transforming the data, continued to show violations of normality and homoscedasticity. One possible solution is to employ nonlinear regression using polynomial equations, such as quadratic or cubic (Cohen, Cohen, West & Aiken, 2003), beyond the scope of the PROCESS macro. Additionally, the internal consistency for pain intensity was low, particularly for the male sample, which could account for error. It is important to consider the limitation in operationalizing the pain constructs that were employed in this study. For example, pain tolerance and pain intensity were not assessed in a controlled environment, which did not account for factors that may have affected the results such as the temperature of the room or background noise. In addition, prompting the participants by explicitly stating that the pain tolerance portion of the study was not a competition may have negatively impacted the accuracy of pain tolerance. All in all, the results including pain tolerance and pain intensity should be interpreted with caution.

Another limitation of the present study was the employment of gender as a binary variable. Given that gender differences were found in the results of the study in which pain tolerance and pain intensity manifested differently in association with other variables, gender as a distal variable provides a limited understanding of how gender differences play out. Also, this study does not explain causality in the relationships between the variables because of the use of correlational analyses. Furthermore, using willingness to see a counselor as the outcome variable, instead of actual help-seeking behavior, limits the inference that can be drawn from the research findings. Although

these limitations exist, the findings significantly add to the help-seeking literature and inform future research directions in improving ways to address the underutilization problem of mental health services.

Theoretically, the researcher conceptually differentiated between emotional pain and physical pain. However, on a more realistic level, the overlap or connections between emotional pain and physical pain are still yet to be fully known. This study may not adequately address this unknown area of research but enters in the research discourse about the connectedness and differentiation of psychological distress and physical pain.

Furthermore, this study was based on the assumption that counseling is needed in the Asian American population. There was little information about other ways that Asian Americans in this sample received support. In one study, Wang and Lau (2015) found that Asian Americans benefited from social support that was mutual and interdependent (peers rather than parents). In another study, Wong et al. (2014) found that Asian American individuals who experienced suicidal ideation were less likely to be advised to seek psychological help than White Americans. The inclusion of informal sources of help such as friends and family would have improved the broader picture of help-seeking processes in the Asian American population.

Implications for Research and Practice

There are several future research directions to consider to address the limitations of this study. Ways to improve this study include: the employment of nonlinear analyses, assessing pain tolerance in a controlled environment, increasing sample size, implementing qualitative methods, using masculine norms instead of a binary gender

category. Given the possible nonlinear nature of the pain tolerance variable in this study, using nonlinear analyses might provide a more accurate explanation of the relationships in the conceptual framework. Another considered improvement is the assessment of pain in a more controlled environment, similar to Franklin et al. (2011), which could improve the validity of pain tolerance. Increasing sample size would also increase power, which would reduce error (Fairchild & MacKinnon, 2009). Using qualitative methods would also expand our understanding of psychological processes that are occurring.

One future direction of research could be to use proximal variables that explore a more nuanced assessment of gender differences, such as the Conformity to Masculine Norms Inventory (Mahalik et al., 2003). For example, Iwamoto, Liao, and Liu (2010) used the Conformity to Masculine Norms Inventory (Mahalik et al., 2003) in exploring Asian American men and coping with depression. Obtaining more specifics on how gender differences play out in relation to pain tolerance and help-seeking behaviors might increase the validity of gender effects that were salient throughout the analyses in this study. More specifically, exploring the impact of gender roles and expectations on the help seeking process may shed light on different decision-making processes for Asian American men and women. Also, exploring gender differences in pain modalities might be worth considering in future studies to determine if consistent findings would occur in other pain stimuli apart from cold water.

Another future direction of research could be to examine age and generation status differences in the relationship between adherence to Asian American values and willingness to seek help when experiencing distress symptoms. Additionally, longitudinal research can help further examine within-person differences that were not accounted for

in this study. In terms of outcome variables, one possible avenue of research could be to expand the construct of willingness to seek help by including medical help, informal support sources such as friends, family, spiritual advisors.

The present study provides meaningful information in important ways that might not be typical of research on Asian American mental health. This study extended the research sample beyond the college population, which is more typical of research on psychological processes in Asian American individuals, into the community, which is less accessible for research. An added contribution was the inclusion of a cross-section of the Asian American population that is under-researched: Asian American men. Statistically, the percentage of men in this study (56.2%) was comparable of the male population according to the U.S. Census Bureau (2010c). By including more community members and more men, not only did the findings increase generalizability of the results of this study, but also raised a question of whether current psychological research that focuses on Asian American individuals can be applied beyond the young adult population.

Furthermore, this study questions whether the assumed relationship between psychological distress and willingness to seek counseling may not be generalizable to the Asian American population. This exposes the limitations of the help-seeking mental health literature, and points to a need to expand this research area to address the diversity of the greater community by including Asian American individuals. Researchers, clinicians, and educators should use caution when applying research on help-seeking

behaviors to diverse populations, given that the assumed help-seeking process was not present in the sample of Asian American individuals.

Regarding practical applications, understanding new information presented in this study might allow professionals to find creative ways to provide psychoeducation on mental health that is more culturally appropriate. Practical applications should take into consideration three aspects of this study: a) gender differences occur in the help-seeking process; and b) adherence to the Asian American value of emotional self-control, having a positive view of holding in one's emotions, predicted men's willingness to seek counseling; c) psychological distress, including depressive symptoms, is not predictive of willingness to seek counseling for Asian American individuals. Men and women have different factors that predicted their willingness to seek counseling. Low pain tolerance might compel women to seek counseling when they are depressed. Men who have high expectations to be self-controlled might be more compelled to go to counseling when they experience depressive symptoms.

This important finding that emotional self-control plays a role in Asian American men's willingness to seek counseling is especially significant. This provides a new perspective on how to increase mental health service utilization in Asian American men. It is unclear whether the presence of depressive symptoms would increase Asian Americans' willingness to seek counseling. To offer counseling to reduce depressive symptoms may not be effective. Instead, offering counseling *as a way to improve self-*

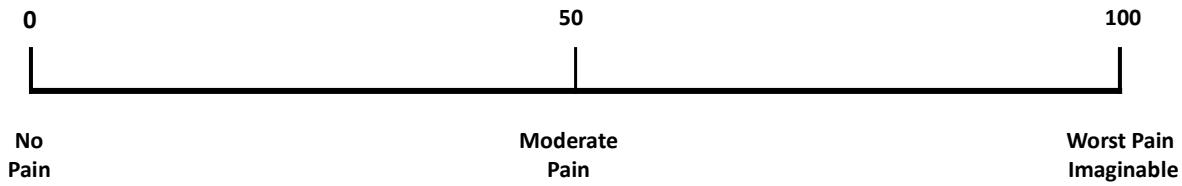
control may align with Asian American men's value of emotional self-control, and lead to increased mental health service utilization.

Since the presence of psychological distress symptoms was not predictive of willingness to seek counseling, this study provides an exception to past research that found a positive relationship between distress and willingness to seek counseling. This study highlights the necessity of practitioners, educators, and researchers to use caution when basing their interventions on empirical research that excludes diverse populations and cultural considerations.

In conclusion, my hope was that this study would help solve a problem that has been my academic mission for several years: to understand why Asian American individuals who are in psychological distress even to the point of death do not seek psychological help; and find ways to connect those hurting individuals to life-giving hope and healing. This study has contributed to this cause by revealing unique barriers that prevent Asian American individuals from seeking mental health services. This valuable new information has potential to impact not only psychological and counseling arenas but also medical and integrative health professionals.

Appendix A

Pain Intensity



Appendix B

Willingness to See a Counselor

INSTRUCTIONS: The following items request problems that some college students have. Please rate your willingness to seek counseling for each of the problems listed below. Use the rating scale given below to indicate your willingness for each item.

Rating Scale

1 = Not Willing to See a Counselor;

2 = Probably Not Willing to See a Counselor;

3 = Probably Willing to See a Counselor

4 = Willing to see a Counselor

_____1. General Anxiety
_____2. Alcohol Problems
_____3. Shyness
_____4. College Adjustment Problems
_____5. Sexual Functioning Problems
_____6. Depression
_____7. Conflict with Parents
_____8. Academic Performance Problems
_____9. Speech Anxiety
_____10. Dating or Relationship Problems
_____11. Financial Concerns
_____12. Career Choice Problems
_____13. Insomnia
_____14. Drug Addiction
_____15. Loneliness or Isolation
_____16. Inferiority Feelings
_____17. Test Anxiety
_____18. Alienation
_____19. Problems Making Friends
_____20. Trouble Studying
_____21. Ethnic or Racial Discrimination
_____22. Roommate Problems
_____23. Ethnic Identify Confusion
_____24. General Health Problems.

Appendix C

Mental Health Inventory- 18

The next set of questions is about how you feel, and how things have been for you during the past 4 weeks. If you are marking your own answers, please circle the appropriate response (0, 1, 2,...). If you need help in marking your responses, tell the interviewer the number of the best response. Please answer every question. If you are not sure which answer to select, please

choose the one answer that comes closest to describing you. The interviewer can explain any words or phrases that you do not understand.

During the past 4 weeks, how much of the time...

	All of the Time	Most of the Time	A Good Bit of the Time	Some of the Time	A Little Bit of the Time	None of the Time
1. has your daily life been full of things that were interesting to you?	**1**	**2**	**3**	**4**	**5**	**6**
2. did you feel depressed?	**1**	**2**	**3**	**4**	**5**	**6**
3. have you felt loved and wanted?	**1**	**2**	**3**	**4**	**5**	**6**
4. have you been a nervous person?	**1**	**2**	**3**	**4**	**5**	**6**
5. have you been in firm control of your behavior, thoughts, emotions, feelings?	**1**	**2**	**3**	**4**	**5**	**6**
6. have you felt tense or high-strung?	**1**	**2**	**3**	**4**	**5**	**6**
7. have you felt calm and peaceful?	**1**	**2**	**3**	**4**	**5**	**6**
8. have you felt emotionally stable?	**1**	**2**	**3**	**4**	**5**	**6**
9. have you felt downhearted or blue?	**1**	**2**	**3**	**4**	**5**	**6**
10. were you able to relax without difficulty?	**1**	**2**	**3**	**4**	**5**	**6**

11. have you felt restless, fidgety, or impatient?	**1**	**2**	**3**	**4**	**5**	**6**
12. have you been moody, or brooded about things?	**1**	**2**	**3**	**4**	**5**	**6**
13. have you felt cheerful, light-hearted?	**1**	**2**	**3**	**4**	**5**	**6**
14. have you been in low or very low spirits?	**1**	**2**	**3**	**4**	**5**	**6**
15. were you a happy person?	**1**	**2**	**3**	**4**	**5**	**6**
16. did you feel you had nothing to look forward to?	**1**	**2**	**3**	**4**	**5**	**6**
17. have you felt so down in the dumps that nothing could cheer you up?	**1**	**2**	**3**	**4**	**5**	**6**
18. have you been anxious or worried?	**1**	**2**	**3**	**4**	**5**	**6**

Appendix D

Asian American Values Scale- Multidimensional

INSTRUCTIONS: Use the scale below to indicate the extent to which you agree with the value expressed in each statement.

1 = Strongly Disagree
2 = Moderately Disagree
3 = Mildly Disagree
4 = Neither Agree or Disagree
5 = Mildly Agree
6 = Moderately Agree
7 = Strongly Agree

_____1. One should recognize and adhere to the social expectations, norms and practices.

_____2. The welfare of the group should be put before that of the individual.

_____3. It is better to show emotions than to suffer quietly.

_____4. One should go as far as one can academically and professionally on behalf of one's family.

_____5. One should be able to boast about one's achievement.

_____6. One's personal needs should be second to the needs of the group.

_____7. One should not express strong emotions.

_____8. One's academic and occupational reputation reflects the family's reputation.

_____9. One should be able to draw attention to one's accomplishments.

_____10. The needs of the community should supersede those of the individual.

_____11. One should adhere to the values, beliefs and behaviors that one's society considers normal and acceptable.

_____12. Succeeding occupationally is an important way of making one's family proud.

_____13. Academic achievement should be highly valued among family members.

_____14. The group should be less important than the individual.

_____15. One's emotional needs are less important than fulfilling one's responsibilities.

_____16. Receiving awards for excellence need not reflect well on one's family.

_____17. One should achieve academically since it reflects on one's family.

_____18. One's educational success is a sign of personal and familial character.

_____19. One should not sing one's own praises.

_____20. One should not act based on emotions.

_____21. One should work hard so that one won't be a disappointment to one's family.

_____22. Making achievements is an important way to show one's appreciation for one's family.

_____23. One's efforts should be directed toward maintaining the well-being of the group first and the individual second.

_____24. It is better to hold one's emotions inside than to burden others by expressing them.

_____25. One need not blend in with society.

_____26. Being boastful should not be a sign of one's weakness and insecurity.

_____27. Conforming to norms provides order in the community.

_____28. Conforming to norms provides one with identity.

_____29. It is more important to behave appropriately than to act on what one is feeling.

_____30. One should not openly talk about one's accomplishments.

_____31. Failing academically brings shame to one's family.

_____32. One should be expressive with one's feelings.

_____33. Children's achievements need not bring honor to their parents.

_____34. One need not sacrifice oneself for the benefit of the group.

_____35. Openly expressing one's emotions is a sign of strength.

_____36. One's achievement and status reflect on the whole family.

_____37. One need not always consider the needs of the group first.

_____38. It is one's duty to bring praise through achievement to one's family.

_____39. One should not do something that is outside of the norm.

_____40. Getting into a good school reflects well on one's family.

_____41. One should be able to brag about one's achievements.

_____42. Conforming to norms is the safest path to travel.

Appendix E

Informed Consent Form

Project Title	Pain Tolerance and Willingness to See a Counselor
Purpose of the Study	This research is being conducted by Gloria A. Huh, under the supervision of Dr. Matthew J. Miller, Department of Counseling, Higher Education, and Special Education, at the University of Maryland, College Park. We are inviting you to participate in this research project because you are at least 18 years old and have self-identified as Asian or Asian American. The purpose of this research project is to better understand help-seeking behaviors in Asian and Asian American individuals. The results of this study may be helpful to counselors and other personnel in assisting Asian and Asian American individuals.
Procedures	The procedures of this study involve your participation in a brief survey and in-person portion. It should require about 15-20 minutes of your time. The survey will ask you about your mental health and help-seeking experiences. Sample questions are: "How willing are you to seek help for academic concerns?" and "In the past month, how often did you feel worn out?" The in-person portion will assess pain tolerance using ice water. This part is completely voluntary and you can stop at any time and will not affect whether you will receive compensation or not. You will then be offered warm beverages to thank you for your participation. You will receive $5 and be asked to enter your first name as well as an email address should you wish to be entered into a raffle for a prize (one of ten $20 E-gift cards—Amazon, Starbucks, or iTunes) as a token of my appreciation for your participation. Your contact information will not be connected to your survey responses.

Potential Risks and Discomforts	Above minimal risk is foreseen with the exposure of one hand in ice water. You can remove your hand at any time and it will not negatively affect your compensation. You will then be offered warm beverages to counterbalance the ice water exposure. Minor emotional distress is a potential risk as some participants may be struggling with issues that need counseling.
Potential Benefits	Although there are no direct benefits from your participation in this research study, the results of the study may help the investigators understand the help-seeking process of Asian and Asian American individuals. Through improved understanding of help-seeking processes, we hope to support the development of interventions that will benefit Asian and Asian American individuals in the future.

Confidentiality	You will not be required to provide any information that may link your identity to your survey responses. At the end of the survey, you will be asked to enter your first name as well as an email address should you wish to be entered into a drawing for a prize as a token of our appreciation for your participation. However, to protect your confidentiality, you will provide this information on a separate sheet where your name and contact information will be separated from your survey responses. For those participants who submit their email addresses for the raffle, only the investigator will have access to it. We will do our best to minimize any potential loss of confidentiality. The data will be collected and stored in an online survey provider and stored in the survey provider's database, which is only accessible with a password. Information submitted to the online survey provider will be backed up daily on their secure servers and the online survey provider will not use any of the information they receive. The paper surveys will be placed in a locked drawer and destroyed as soon as the data is no longer needed. Once the information is downloaded from the online survey provider, it will be stored in a password-protected laptop computer. Permission will only be given to the investigator to access the data. As per the University of Maryland policy on records retention and disposal, all data and files pertinent to the research, including work done by students, will be retained for a period of no less than 10 years after the completion of the research and will then be destroyed. Any reports based on the survey information will only present the results in aggregate form (e.g., group averages). Individual survey response will never be reported.
Medical Treatment	The University of Maryland does not provide any medical, hospitalization or other insurance for participants in this research study, nor will the University of Maryland provide any medical treatment or compensation for any injury sustained as a result of participation in this research study, except as required by law.

Right to Withdraw and Questions	Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify. Choosing to participate in the study will have no effect on your grades or standing at the University of Maryland. If you decide to stop taking part in the study, if you have questions, concerns, or complaints, or if you need to report an injury related to the research, please contact the investigator(s): Gloria A. Huh, M.S.Ed. at glohuh@umd.edu; 3214 Benjamin Building, CAPS Department, University of Maryland, College Park, MD 20742 or Dr. Matthew J. Miller at mmille27@umd.edu; 3234 Benjamin Building, University of Maryland, College Park, MD 20742; (301) 405-8446.
Participant Rights	If you have questions about your rights as a research participant or wish to report a research-related injury, please contact: **University of Maryland College Park** **Institutional Review Board Office** **1204 Marie Mount Hall** **College Park, Maryland, 20742** **E-mail:** irb@umd.edu **Telephone: 301-405-0678** This research has been reviewed according to the University of Maryland, College Park IRB procedures for research involving human subjects.

Statement of Consent	*Your signature indicates that you are at least 18 years of age; you have read this consent form or have had it read to you; your questions have been answered to your satisfaction and you voluntarily agree to participate in this research study. You will receive a copy of this signed consent form.* *If you agree to participate, please sign your name below.*	
Signature and Date	**NAME OF PARTICIPANT** **[Please Print]**	
	SIGNATURE OF PARTICIPANT	
	DATE	

Appendix F

Recruitment Information

SUBJECT: Pain Tolerance and Asian Americans' Help-Seeking Experiences – $5 AND raffle for $20 gift card

Hello,

What does pain tolerance have to do with seeing a counselor? Participate and you will find out what this study is about.

Did you know that the Asian American population is one of the most understudied groups in the United States? There is such a need in hearing your voice so that we can know more about Asian Americans' experiences and not be silenced.

This is where you come into the picture. Have your pain tolerance measured and enjoy a nice hot cup of coffee and tea!

The purpose of this research project is to better understand Asian Americans' help-seeking experiences. If you participate in the study, **you will receive $5 and be entered in a raffle for a chance to win one of five $20 E-gift cards (Amazon, Starbucks, or iTunes)**.

My name is Gloria A. Huh, M.S.Ed., M.A., and I am a doctoral candidate in Counseling Psychology at the University of Maryland, College Park.

If you are interested in participating in this study, please click on the link to the survey: https://umd.az1.qualtrics.com/SE/?SID=SV_6rK6O4BcoQ4s3hr. Completion of the online registration includes an online consent form and a brief demographics (e.g., age, self-identified

gender, etc.) questionnaire. In-person participation is required to complete the study. Raffle winners will be contacted by email.

This research has been fully approved through the Institutional Review Board (IRB) at the University of Maryland (Will Insert Approved Study Number Here).

Thank you for your time and consideration. Please feel free to contact me with any questions, comments, or suggestions.

Sincerely,

Gloria A. Huh, M.S.Ed., M.A.
Doctoral Candidate
Department of Counseling, Higher Education, and Special Education
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References

Abe-Kim, J., Takeuchi, D. T., Hong, S., Zane, N., Sue, S., Spencer, M. S., & ... Alegría, M. (2007). Use of mental health-related services among immigrant and US-born Asian Americans: Results from the National Latino and Asian American study. *American Journal of Public Health*, *97*(1), 91-98. doi:10.2105/AJPH.2006.098541

Ahn, A. J., Kim, B. K., & Park, Y. S. (2009). Asian cultural values gap, cognitive flexibility, coping strategies, and parent-child conflicts among Korean Americans. *Asian American Journal of Psychology*, *S*(1), 29-44. doi:10.1037/1948-1985.S.1.29

Albarracín, D., Johnson, B. T., Fishbein, M., & Muellerleile, P. A. (2001). Theories of reasoned action and planned behavior as models of condom use: A meta-

analysis. *Psychological Bulletin*, *127*(1), 142-161. doi:10.1037/0033-2909.127.1.142

American Counseling Association. (2015). Retrieved from http://www.counseling.org/aca-community/learn-about-counseling/what-is-counseling/overview

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5™ (5th ed.)*. Arlington, VA, US: American Psychiatric Publishing, Inc.

American Psychological Association. (2015). Retrieved from http://www.apa.org/ed/graduate/specialize/counseling.aspx

American Psychological Association. (2010). Ethical principles of psychologists and code of conduct. Retrieved from http://apa.org/ethics/code/index.aspx

Atkinson, D. R., Lowe, S., & Matthews, L. (1995). Asian-American acculturation, gender, and willingness to seek counseling. *Journal of Multicultural Counseling and Development*, *23*(3), 130-138. doi:10.1002/j.2161-1912.1995.tb00268.x

Auvray, M., Myin, E., & Spence, C. (2010). The sensory-discriminative and affective-motivational aspects of pain. *Neuroscience and Biobehavioral Reviews*, *34*(2), 214-223. doi:10.1016/j.neubiorev.2008.07.008

Barnes, P., Adams, P., & Powell-Griner, E. (2008). Health characteristics of the Asian adult population: United States, 2004-2006. *Advance Data*, *394*, 1-22.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173-1182. doi:10.1037/0022-3514.51.6.1173

Barr, S. C. (2010). *Ecological examination of the development of color-blind racial beliefs in black college students* (Doctoral dissertation, University of Illinois at Urbana-Champaign).

Bender, T. W., Gordon, K. H., Bresin, K., & Joiner, T. J. (2011). Impulsivity and suicidality: The mediating role of painful and provocative experiences. *Journal of Affective Disorders*, *129*(1-3), 301-307. doi:10.1016/j.jad.2010.07.023

Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology: An International Review*, *46*(1), 5-34. doi:10.1080/026999497378467

Berwick, D. M., Murphy, J. M., Goldman, P. A., Ware, J. E., Barsky, A. J., & Weinstein, M. C. (1991). Performance of a five-item mental health screening test. *Medical Care*, *29*(2), 169-176. doi:10.1097/00005650-199102000-00008

Birnie, K. A., Noel, M., Chambers, C. T., von Baeyer, C. L., & Fernandez, C. V. (2011). The cold pressor task: Is it an ethically acceptable pain research method in children? *Journal of Pediatric Psychology*, *36*(10), 1071-1081. doi:10.1093/jpepsy/jsq092

Boggero, I. A., Geiger, P. J., Segerstrom, S. C., & Carlson, C. R. (2015). Pain intensity moderates the relationship between age and pain interference in chronic orofacial

pain patients. *Experimental Aging Research*, *41*(4), 463-474. doi:10.1080/0361073X.2015.1053770

Bohus, M., Limberger, M., Ebner, U., Glocker, F. X., Schwarz, B., Wernz, M., & Lieb, K. (2000). Pain perception during self-reported distress and calmness in patients with borderline personality disorder and self-mutilating behavior. *Psychiatry Research*, *95*(3), 251-260. doi:10.1016/S0165-1781(00)00179-7

Breland, J. Y., Barrera, T. L., Snow, A. L., Sansgiry, S., Stanley, M. A., Wilson, N., & ... Kunik, M. E. (2015). Correlates of pain intensity in community-dwelling

individuals with mild to moderate dementia. *American Journal of Alzheimer's Disease and Other Dementias*, *30*(3), 320-325. doi:10.1177/1533317514545827

Bui, K. T., & Takeuchi, D. T. (1992). Ethnic minority adolescents and the use of community mental health care services. *American Journal of Community Psychology*, *20*(4), 403-417. doi:10.1007/BF00937752

Burckhardt, C. S., & Jones, K. D. (2003). Adult Measures of Pain: Rheumatoid Arthritis Pain Scale (RAPS). *Arthritis & Rheumatism: Arthritis Care & Research*, *49*(5,Suppl), S97-S99.

Cash, T. F., Begley, P.J., McCown, D. A., & Weise, B.C. (1975). When counselors are heard but not seen: Initial impact of physical attractiveness. *Journal of Counseling Psychology*, *22*, 273-279.

Cepeda-Benito, A., & Short, P. (1998). Self-concealment, avoidance of psychological services, and perceived likelihood of seeking professional help. *Journal of Counseling Psychology*, *45*(1), 58-64. doi:10.1037/0022-0167.45.1.58

Cervero, F. (2012). *Understanding pain: exploring the perception of pain*. MIT Press.

Chan, M. P., Hamamura, T., & Janschewitz, K. (2013). Ethnic differences in physical pain sensitivity: Role of acculturation. *Pain*, *154*(1), 119-123. doi:10.1016/j.pain.2012.09.015

Chan, C., Ho, P., & Chow, E. (2002). A body-mind-spirit model in health: an Eastern approach. *Social Work in Health Care*, *34*(3/4), 261-282.

Chang, E. C. (2002). Cultural differences in psychological distress in Asian and Caucasian American College Students: Examining the Role of cognitive and

affective concomitants. *Journal of Counseling Psychology*, *49*(1), 47-59. doi: 10.1037//0022-0167.49.1.47

Chang, C. Y., & Myers, J. E. (1997). Understanding and Counseling Korean Americans: Implications for Training. *Counselor Education and Supervision*, *37*(1), 35-49.

Choi, N., & Miller, M. J. (2014). AAPI college students' willingness to seek counseling: The role of culture, stigma, and attitudes. *Journal of Counseling Psychology*, *61*(3), 340-351. doi:10.1037/cou0000027

Chu, J. P., Hsieh, K., & Tokars, D. A. (2011). Help-seeking tendencies in Asian Americans with suicidal ideation and attempts. *Asian American Journal of Psychology*, *2*(1), 25-38. doi:10.1037/a0023326

Chu, J. P., & Sue, S. (2011). Asian American mental health: what we know and what we don't know. *Online Readings in Psychology and Culture*, *3*(1). http://dx.doi.org/10.9707/2307-0919.1026

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences, 3rd ed*. Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

Compton, M. A. (1994). Cold-pressor pain tolerance in opiate and cocaine abusers: Correlates of drug type and use status. *Journal of Pain and Symptom Management*, *9*(7), 462-473. doi:10.1016/0885-3924(94)90203-8

Courtenay, W. H. (2011). *Dying to be men: Psychosocial, environmental and biobehavioral directions in promoting the health of men and boys.* New York, NY: Routledge.

Crombez, G., Baeyens, F., & Eelen, P. (1994). Sensory and temporal information about impending pain: The influence of predictability on pain. *Behaviour Research and Therapy*, *32*(6), 611-622. doi:10.1016/0005-7967(94)90015-9

Cvijetic, S., Bobic, J., Grazio, S., Uremovic, M., Nemcic, T., & Krapac, L. (2014). Quality of life, personality and use of pain medication in patients with chronic

back pain. *Applied Research in Quality of Life*, *9*(2), 401-411. doi:10.1007/s11482-013-9219-9

Derogatis, L. (1993). *Brief Symptom Inventory: Administration, scoring, and procedures manual, 3rd ed.* Minneapolis, MN: National Computer Systems, Inc.

Derogatis, L. R. (1975). *The SCL-90-R*. Baltimore, MD: Clinical Psychometric Research.

Derogatis, L. R. (1994). *SCL-90-R: Administration, scoring and procedures manual*. Minneapolis, MN: National Computer Systems.

Dickson, G., & Kim, J. (2003). Reconstructing a meaning of pain: older Korean American women's experiences with the pain of osteoarthritis. *Qualitative Health Research*, *13*(5), 675-688.

Doidge, N. (2007). *The brain that changes itself: Stories of personal triumph from the frontiers of brain science*. New York, NY, US: Viking.

Downie, W. W., Leatham, P. A., Rhind, V. M., Pickup, M. E., & Wright, V. (1978). The visual analogue scale in the assessment of grip strength. *Annals of the Rheumatic Diseases*, *37*(4), 382-384.

Drapeau, A., Marchand, A., & Beaulieu-Prévost, D. (2011). Epidemiology of psychological distress. *Mental Illness. Understanding, Prediction and Control*, 105-134.

Edens, J. L., & Gil, K. M. (1995). Experimental induction of pain: Utility in the study of clinical pain. *Behavior Therapy*, *26*(2), 197-216. doi:10.1016/S0005-7894(05)80102-9

Edwards, J. R., & Lambert, L. S. (2007). Methods for integrating moderation and mediation: A general analytical framework using moderated path analysis. *Psychological Methods*, *12*(1), 1-22. doi:10.1037/1082-989X.12.1.1

Enculturation. (n.d.). *Merriam-Webster Online.* In Merriam-Webster. Retrieved February 1, 2017, from http://www.merriam-webster.com/dictionary/enculturation.

Fairchild, A. J., & MacKinnon, D. P. (2009). A General Model for Testing Mediation and Moderation Effects. *Prevention Science : The Official Journal of the Society for Prevention Research*, *10*(2), 87–99. http://doi.org/10.1007/s11121-008-0109-6

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175-191.

Ferraz, M. B., Quaresma, M. R., Aquino, L. R., Atra, E., Tugwell, P., & Goldsmith, C. H. (1990). Reliability of pain scales in the assessment of literate and illiterate

patients with rheumatoid arthritis. *The Journal of Rheumatology*, *17*(8), 1022-1024.

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, MA: Addison Wesley.

Franklin, J. C., Hessel, E. T., & Prinstein, M. J. (2011). Clarifying the role of pain tolerance in suicidal capability. *Psychiatry Research*, *189*(3), 362-367. doi:10.1016/j.psychres.2011.08.001

Frazier, P. A., Tix, A. P., & Barron, K. E. (2004). Testing moderator and mediator effects in counseling psychology research. *Journal of Counseling Psychology*, *51*(1), 115. doi: 10.1037/0022-0167.51.1.115

Freund, W., Weber, F., Billich, C., Birklein, F., Breimhorst, M., & Schuetz, U. H. (2013). Ultra- marathon runners are different: investigations into pain tolerance and

personality traits of participants of the TransEurope footrace 2009. *Pain Practice*, *13*(7), 524-532. doi:10.1111/papr.12039

Friborg, O., Hjemdal, O., Rosenvinge, J. H., Martinussen, M., Aslaksen, P. M., & Flaten, M. A. (2006). Resilience as a moderator of pain and stress. *Journal of Psychosomatic Research*, *61*(2), 213-219. doi:10.1016/j.jpsychores.2005.12.007

Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science (Wiley-Blackwell)*, *18*(3), 233-239.

Fuller, A. K., & Robinson, M. E. (1995). Perceptual differences between patients with chronic low back pain and healthy volunteers using magnitude matching and clinically relevant stimuli. *Behavior Therapy*, *26*241-253.

Furley, David J. (1999), Routledge history of philosophy, volume II, from Aristotle to Augustine, New York, NY: Routledge.

George, S., Duran, N., & Norris, K. (2014). A systematic review of barriers and facilitators to minority research participation among African Americans, Latinos, Asian Americans, and Pacific Islanders. *American Journal of Public Health*, *104*(2), e16-e31. doi: 10.2105/AJPH.2013.301706

Gim, R.H., Atkinson, D.R., & Whiteley, S. (1990). Asian-American acculturation, severity of concerns, and willingness to see a counselor. *Journal of Counseling Psychology*, *37*, 281-285.

Goodin, B. R., Pham, Q. T., Glover, T. L., Sotolongo, A., King, C. D., Sibille, K. T., & ... Fillingim, R. B. (2013). Perceived racial discrimination, but not mistrust of medical researchers, predicts the heat pain tolerance of African Americans with

symptomatic knee osteoarthritis. *Health Psychology*, *32*(11), 1117-1126. doi:10.1037/a0031592

Gould, K. H. (1988). Asian and Pacific Islanders: Myth and reality. *Social Work*, *33*, 143-147.

Grover, S., & Ghosh, A. (2014). Somatic symptom and related disorders in Asians and Asian Americans. *Asian Journal of Psychiatry*, 777-79. doi:10.1016/j.ajp.2013.11.014

Hanssen, M. M., Vancleef, L. G., Vlaeyen, J. S., & Peters, M. L. (2014). More optimism, less pain! The influence of generalized and pain-specific expectations on experienced cold-pressor pain. *Journal of Behavioral Medicine*, *37*(1), 47-58. doi:10.1007/s10865-012-9463-8

Harms-Ringdahl, K., Carlsson, A. M., Ekholm, J., Raustorp, A., Svensson, T., & Toresson, H. (1986). Pain assessment with different intensity scales in response to

loading of joint structures. *Pain*, *27*(3), 401-411. doi:10.1016/0304-3959(86)90163-6

Hasin, D., & Link, B. (1988). Age and recognition of depression: Implications for a cohort effect in major depression. *Psychological Medicine*, *18*(3), 683-688. doi:10.1017/S0033291700008369

Hasson, D., & Arnetz, B. (2005). Validation and findings comparing VAS vs. Likert Scales for psychosocial measurements. *International Electronic Journal of Health Education*, *8*178-192.

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: Guilford Press.

Hayes, S. C., Bissett, R. T., Korn, Z., Zettle, R. D., Rosenfarb, I. S., Cooper, L. D., & Grundt, A. M. (1999). The impact of acceptance versus control rationales on pain tolerance. *The Psychological Record*, *49*(1), 33-47.

Hayes, A. F., & Scharkow, M. (2013). The relative trustworthiness of inferential tests of the indirect effect in statistical mediation analysis: Does method really matter? *Psychological Science, 24,* 1918-1927. doi:10.1177/0956797613480187

Hom, M. A., Stanley, I. H., & Joiner, T. E. (2015). Evaluating factors and interventions that influence help-seeking and mental health service utilization among suicidal

individuals: A review of the literature. *Clinical Psychology Review*, *40*, 28-39. doi:10.1016/j.cpr.2015.05.006

Huh, G. A. (2014). *The effect of indirect interpersonal exposure to counseling on willingness through attitudes.* (Master's Thesis). Retrieved from UMD Theses and Dissertations (DRUM DOI doi:10.13016/M22055)

International Association for the Study of Pain. (2015). *IASP Taxonomy*. Retrieved from http://www.iasp-pain.org/Taxonomy

Iwamoto, D. K., Liao, L., & Liu, W. M. (2010). Masculine norms, avoidant coping, Asian values, and depression among Asian American men. *Psychology of Men & Masculinity*, *11*(1), 15-24. doi:10.1037/a0017874

Jespersen, A., Amris, K., Graven-Nielsen, T., Arendt-Nielsen, L., Bartels, E. M., Torp-Pedersen, S., & ... Danneskiold-Samsoe, B. (2013). Assessment of Pressure-Pain

Thresholds and Central Sensitization of Pain in Lateral Epicondylalgia. *Pain Medicine*, *14*(2), 297-304. doi:10.1111/pme.12021

Joiner, T. (2005). *Why people die by suicide*. Cambridge, MA, US: Harvard University Press.

Keenan, K., Hipwell, A., Hinze, A., & Babinski, D. (2009). The association of pain and depression in preadolescent girls: moderation by race and pubertal stage. *Journal of Pediatric Psychology*, *34*(7), 727-737. doi:10.1093/jpepsy/jsn111

Kenshalo, D. J., Anton, F., & Dubner, R. (1989). The detection and perceived intensity of noxious thermal stimuli in monkey and in human. *Journal of Neurophysiology*, *62*(2), 429-436.

Kim, P. Y., & Kendall, D. L. (2015). Etiology Beliefs Moderate the Influence of Emotional Self-Control on Willingness to See a Counselor Through Help-Seeking

Attitudes Among Asian American Students. *Journal of Counseling Psychology*, *62*(2), 148-158. doi:10.1037/cou0000015

Kim, B. S. K., Li, L. C., & Ng, G. F. (2005). The Asian American Values Scale--Multidimensional: Development, reliability, and validity. *Cultural Diversity and Ethnic Minority Psychology*, *11*(3), 187-201. doi:10.1037/1099-9809.11.3.187

Kim. B. S. K., & Omizo, M. M. (2003). Asian cultural values, attitudes toward seeking professional psychological help, and willingness to see a counselor. *The Counseling Psychologist, 31,* 343-361. doi: 10.1177/0011000003031003008

Kim, P. Y., & Park, I. J. K. (2009). Testing a multiple mediation model of Asian American

college students' willingness to see a counselor. *Cultural Diversity and Ethnic Minority Psychology, 15*(3), 295-302. doi: 10.1037/a0014396

Kim, Y., Wellisch, D., & Spillers, R. (2008). Effects of psychological distress on quality of life of adult daughters and their mothers with cancer. *Psycho-Oncology*, *17*(11), 1129-1136.

Kim, J. E., & Zane, N. (2015). Help-seeking intentions among Asian American and White American Students in psychological distress: Application of the health belief model. *Cultural Diversity And Ethnic Minority Psychology*, doi:10.1037/cdp0000056

Koenig, J., Jarczok, M. N., Ellis, R. J., Bach, C., Thayer, J. F., & Hillecke, T. K. (2014). Two-Week Test-Retest Stability of the Cold Pressor Task Procedure at two

different Temperatures as a Measure of Pain Threshold and Tolerance. *Pain Practice*, *14*(3), E126-35. doi:10.1111/papr.12142

Kroenke, K., & Spitzer, R. L. (2002). The PHQ-9: A new depression and diagnostic severity measure. *Psychiatric Annals, 32*, 509-521.

LeBaron, S., Zeltzer, L., & Fanurik, D. (1989). An investigation of cold pressor pain in children (Part I). *Pain (03043959)*,*37*(2), 161-171. doi:10.1016/0304-3959(89)90127-9

Le Meyer, O., Zane, N., Cho, Y., & Takeuchi, D. T. (2009). Use of specialty mental health services by Asian Americans with psychiatric disorders. *Journal of Consulting and Clinical Psychology*, *77*(5), 1000-1005. doi: 10.1037/a0017065

Lee, J., Watson, D., & Frey Law, L. (2010). Lower-order pain-related constructs are more predictive of cold pressor pain ratings than higher-order personality traits. *Journal of Pain*, *11*(7), 681-691. doi:10.1016/j.jpain.2009.10.013

Leong F.T.L., & Lau, A.S.L. (2001) Barriers to providing effective mental health services to Asian Americans. *Mental Health Services Research*, *3*, 201-214.

Levine, F. M., Krass, S. M., & Padawer, W. J. (1993). Failure hurts: the effects of stress due to difficult tasks and failure feedback on pain report. *Pain (03043959)*, *54*(3), 335-340. doi:10.1016/0304-3959(93)90034-M

Lewis, C. S. (1940). *The problem of pain.* New York: Macmillan.

Lin, K. M. (1996). Cultural influences on the diagnosis of psychotic and organic disorders. In J. E. Mezzich, A. Kleinman, H. Fabrega, & D. L. Parron (Eds.),

Culture and psychiatric diagnosis: A DSM–IV perspective. Washington, DC: American Psychiatric Press.

Lin, K., & Cheung, F. (1999). Mental health issues for Asian Americans. *Psychiatric Services*, *50*(6), 774-780. doi:10.1176/ps.50.6.774

Lin, J., Lin, L., Kuo, M., Hsu, S., Lee, T., Lai, C., & Wu, J. (2014). Assessment of the 9-item Patient Health Questionnaire (PHQ-9) as a screen tool for symptoms of depression in community caregivers for adults with intellectual disabilities. *Research in Developmental Disabilities*, *35*(1), 178-184. doi:10.1016/j.ridd.2013.10.008

Liu, X., Wang, S., Chang, S., Chen, W., & Si, M. (2013). Effect of brief mindfulness intervention on tolerance and distress of pain induced by cold-pressor task. *Stress*

and Health: Journal of the International Society for the Investigation of Stress, *29*(3), 199-204. doi:10.1002/smi.2446

Lomax, R. G., & Hahs-Vaughn, D. L. (2007). *Statistical concepts: A second course, 3rd ed*. New York, NY, US: Routledge/Taylor & Francis Group.

MacDonald, G., & Leary, M. R. (2005). Why does social exclusion hurt? The relationship between social and physical pain. *Psychological Bulletin*, *131*(2), 202-223. doi:10.1037/0033-2909.131.2.202

MacKinnon, D. P., & Fairchild, A. J. (2009). Current directions in mediation analysis. *Current Directions in Psychological Science*, *18*(1), 16-20. doi: 10.1007/s11121-008-0109-6

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, *7*(1), 83-104. doi:10.1037/1082-989X.7.1.83

Mahalik, J. R., Locke, B. D., Ludlow, L. H., Diemer, M. A., Scott, R. J., Gottfried, M., & Freitas, G. (2003). Development of the Conformity to Masculine Norms Inventory. *Psychology of Men & Masculinity*, *4*(1), 3-25. doi:10.1037/1524-9220.4.1.3

Manning, W. G., Newhouse, J. P., & Ware, Jr., J. E. (1982). The status of health in demand estimation; or, beyond excellent, good, fair, poor. In V. R. Fuchs (Ed.),

Economic Aspects of Health, (pp. 141 - 184). Chicago, IL: University of Chicago Press.

Maquet, D., Croisier, J., Demoulin, C., & Crielaard, J. (2004). Pressure pain thresholds of tender point sites in patients with fibromyalgia and in healthy controls. *European Journal of Pain*, *8*(2), 111-117. doi:10.1016/S1090-3801(03)00082-X

Masuda, A., Anderson, P. L., Twohig, M. P., Feinstein, A. B., Chou, Y., Wendell, J. W., & Stormo, A. R. (2009). Help-seeking experiences and attitudes among African American, Asian American, and European American college students. *International Journal for the Advancement of Counselling*, *31*(3), 168-180. doi: 10.1007/s10447-009-9076-2

McCormack, H. M., Horne, D. J., & Sheather, S. (1988). Clinical applications of visual analogue scales: A critical review. *Psychological Medicine*, *18*(4), 1007-1019. doi:10.1017/S0033291700009934

McGrath, P. A., Gracely, R. H., Dubner, R., & Heft, M. W. (1983). Non-pain and pain sensations evoked by tooth pulp stimulation. *Pain (03043959)*, *15*(4), 377-388. doi:10.1016/0304-3959(83)90073-8

Melzack, R., Casey, K. L. (1968). Sensory, motivational, and central control determinants of pain: a new conceptual model. In D. R. Kenshalo (Ed.), *The skin senses* (423-439). Springfield, IL: Charles C. Thomas.

Melzack, R., & Wall, P. D. (1965). Pain mechanisms: a new theory. *Science*, *150*, 971-979.

Middleton, J. W., Simpson, G. K., De Wolf, A., Quirk, R., Descallar, J., & Cameron, I. D. (2014). Psychological Distress, Quality of Life, and Burden in Caregivers

During Community Reintegration After Spinal Cord Injury. *Archives of Physical Medicine & Rehabilitation*, *95*(7), 1312-1319. doi:10.1016/j.apmr.2014.03.017

Min, P. G. (1984). From white-collar occupations to small business: Korean immigrants' occupational adjustment. *Sociological Quarterly*, *25*(3), 333-352.

Mitchell, L. A., MacDonald, R. R., & Brodie, E. E. (2004). Temperature and the Cold Pressor Test. *The Journal of Pain*, *5*(4), 233-238. doi:10.1016/j.jpain.2004.03.004

Moayedi, M., & Davis, K. D. (2013). Theories of pain: From specificity to gate control. *Journal of Neurophysiology*, *109*(1), 5-12. doi:10.1152/jn.00457.2012

Munch, E. (1895). *The Scream* [Painting]. Oslo, Norway: National Gallery.

National Multiple Sclerosis Society. (1997). *MSQLI: Multiple Sclerosis Quality of Life Inventory: A user's manual.* New York, NY: National Multiple Sclerosis Society.

Nguyen-Feng, V. N., Beydoun, H. A., McShane, M. K., & Blando, J. D. (2015). Disparities in Hospital Services Utilization Among Patients with Mental Health Issues: A Statewide Example Examining Insurance Status and Race Factors From 1999-2010. *Journal of Health Disparities Research & Practice*, *8*(2), 89-101.

Nguyen, D., & Bornheimer, L. A. (2014). Mental health service use types among Asian Americans with a psychiatric disorder: considerations of culture and

need. *Journal of Behavioral Health Services & Research*, *41*(4), 520-528. doi:10.1007/s11414-013-9383-6

Nishimoto, R. (1988). A cross-cultural analysis of psychiatric symptom expression using Langner's twenty-two item index. *Journal of Sociology and Social Welfare*, *15*(4), 45-62.

Okazaki, S., Liu, J. F., Longworth, S. L., & Minn, J. Y. (2002). Asian American-White American differences in expressions of interpersonal anxiety: A replication and extension. *Cultural Diversity and Ethnic Minority Psychology*, *8*(3), 234-247. doi:10.1037/1099-9809.8.3.234

Okazaki, S. (2000). Asian American and White American differences on affective distress symptoms: Do symptom reports differ across reporting methods? *Journal of Cross-Cultural Psychology, 31,* 603- 625. doi: 10.1177/0022022100031005004

Parloff, M. B., Kelman, H.C., Frank, J.D. (1954). Comfort, effectiveness, and self-awareness as criteria for improvement in psychotherapy. *American Journal of Psychiatry*. *3*, 343-351.

Petkus, A., Gum, A., King-Kallimanis, B., & Wetherell, J. (2009). Trauma history is associated with psychological distress and somatic symptoms in homebound older

adults. *American Journal of Geriatric Psychiatry*, 17(9), 810-818. doi:10.1097/JGP.0b013e3181b20658

Ponce, F. Q., & Atkinson, D.R. (1989). Mexican-American acculturation, counselor ethnicity, counseling style, and perceived counselor credibility. *Journal of Counseling Psychology*, *36*, 203-208. doi:10.1037/0022-0167.36.2.203

Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research*, *42*(1), 185-227. doi:10.1080/00273170701341316

Preacher, K. J., & Kelley, K. (2011). Effect size measures for mediation models: Quantitative strategies for communicating indirect effects. *Psychological Methods*, *16*(2), 93-115. doi:10.1037/a0022658

Rhee, S. (2009). The impact of immigration and acculturation on the mental health of Asian Americans: overview of epidemiology and clinical implications. In Trinh, N.-H. et al. (Eds.), *Handbook of Mental Health and Acculturation in Asian American Families*, (pp. 81-98). New York, NY: Humana Press.

Ridner, S. (2004). Psychological distress: concept analysis. *Journal of Advanced Nursing*, *45*(5), 536-545. doi:10.1046/j.1365-2648.2003.02938.x

Scott, J., & Huskisson, E. C. (1976). Graphic representation of pain. *Pain (03043959)*, *2*(2), 175-184. doi:10.1016/0304-3959(76)90113-5

Severeijns, R., Vlaeyen, J. S., van den Hout, M. A., & Weber, W. J. (2001). Pain catastrophizing predicts pain intensity, disability, and psychological distress

independent of the level of physical impairment. *The Clinical Journal of Pain*, *17*(2), 165-172. doi:10.1097/00002508-200106000-00009

Sherbourne, C. D., Hays, R. D., Ordway, L., DiMatteo, M. R., & Kravitz, R. L. (1992). Antecedents of adherence to medical recommendations: Results from the Medical Outcomes Study. *Journal of Behavioral Medicine*, *15*(5), 447-468. doi:10.1007/BF00844941

Shin, J. (2002). Help-seeking behaviors by Korean immigrants for depression. *Issues in Mental Health Nursing*, *23*(5), 461-476.

Singelis, T. M. (1994). The measurement of independent and interdependent self-construals. *Personality and Social Psychology Bulletin*, *20*(5), 580-591. doi:10.1177/0146167294205014

Sandhu, D. S. (Ed.). (1999). Asian and Pacific Islander Americans: issues and concerns for counseling and psychotherapy. Commack, NY: Nova Science Publishers.

Sorkin, D. H., Nguyen, H., & Ngo-Metzger, Q. (2011). Assessing the mental health needs and barriers to care among a diverse sample of Asian American older adults. *Journal of General Internal Medicine*, *26*(6), 595-602. doi:10.1007/s11606-010-1612-6

Sorkin, D. H., Pham, E., & Ngo-Metzger, Q. (2009). Racial and ethnic differences in the mental health needs and access to care of older adults in California. *Journal of the*

American Geriatrics Society, *57*(12), 2311-2317. doi:10.1111/j.1532-5415.2009.02573.x

Sternbach, R. A. (1989). Acute versus chronic pain. In R. Melzack & R. Wall (Eds.), *Textbook of pain* (pp. 242-246). Edinborough: Churchill Livingstone.

Stirratt, M. J., Dunbar-Jacob, J., Crane, H. M., Simoni, J. M., Czajkowski, S., Hilliard, M. E., & ... Nilsen, W. J. (2015). Self-report measures of medication adherence behavior: Recommendations on optimal use. *Translational Behavioral Medicine*, *5*(4), 470-482. doi:10.1007/s13142-015-0315-2

Substance Abuse and Mental Health Services Administration, National Surveys on Drug Use and Health (2013). *The NSDUH Report: Need for and Receipt of Substance Use Treatment among Asian Americans and Pacific Islanders*. Retrieved from http://samhsa.gov/data/2k13/NSDUH125/sr125-aapi-tx.htm

Sue, S., Cheng, J., Saad, C. S., & Chu, J. P. (2012). Asian American mental health: A call to action. *American Psychologist*, *67*(7), 532-544. doi:10.1037/a0028900

Takeuchi, D. T., Zane, N., Hong, S., Chae, D. H., Gong, F., Gee, G. C., & ... Alegría, M. (2007). Immigration-related factors and mental disorders among Asian Americans. *American Journal of Public Health*, 97(1), 84-90. doi:10.2105/AJPH.2006.088401

Triandis, H. C., Bontempo, R., Villareal, M. J., Asai, M., & Lucca, N. (1988). Individualism and collectivism: Cross-cultural perspectives on self-ingroup relationships. *Journal of Personality and Interpersonal Psychology*, *54*(2), 323-338. doi:10.1037/0022-3514.54.2.323

Tsao, J. I., Glover, D. A., Bursch, B., Ifekwunigwe, M., & Zeltzer, L. K. (2002). Laboratory pain reactivity and gender: Relationship to school nurse visits and school absences. *Journal of Developmental and Behavioral Pediatrics*, *23*(4), 217-224. doi:10.1097/00004703-200208000-00004

Tung, W., & Li, Z. (2015). Pain Beliefs and Behaviors Among Chinese. *Home Health Care Management & Practice*, *27*(2), 95-97. doi:10.1177/1084822314547962

U.S. Department of Health and Human Services. (2001). *Mental Health: Culture, Race, and Ethnicity—A Supplement to Mental Health: A Report of the Surgeon General*. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services.

U.S. Census Bureau. (2010a). *2010 Census Briefs- The Asian Population: 2010.* Retrieved from http://www.census.gov/prod/cen2010/briefs/c2010br-11.pdf

U.S. Census Bureau. (2010b). *Census redistricting data (public law 94-171) summary file, custom table 3.* Retrieved from http://2010.census.gov/news/releases/operations/cb11-cn123.html

U.S. Census Bureau. (2010c). *2010 Census Briefs- Age and Sex Composition: 2010.* Retrieved from https://www.census.gov/prod/cen2010/briefs/c2010br-03.pdf

van Gogh, V. (1882). *Worn Out* [Painting]. Amsterdam, The Netherlands: Van Gogh Museum.

Van Orden, K. A., Lynam, M. E., Hollar, D., & Joiner, T. J. (2006). Perceived burdensomeness as an indicator of suicidal symptoms. *Cognitive Therapy and*

Research, *30*(4), 457-467. doi:10.1007/s10608-006-9057-2

Veit, C. T., & Ware, J. 1. (1983). The structure of psychological distress and well-being in general populations. *Journal of Consulting & Clinical Psychology*, *51*730-742. doi:10.1037/0022-006X.51.5.730

Vogel, D. L., & Wei, M. (2005). Adult attachment and help-seeking intent: the mediating roles of psychological distress and perceived social support. *Journal of Counseling Psychology*, *52*(3), 347-357. doi:10.1037/0022-0167.52.3.347

Vogel, D. L., Wester, S. R., & Larson, L. M. (2007). Avoidance of counseling: Psychological factors that inhibit seeking help. *Journal of Counseling & Development*, *85*(4), 410-422. doi:10.1002/j.1556-6678.2007.tb00609.x

Vogel, D. L., Wester, S. R., Wei, M., & Boysen, G. A. (2005). The role of outcome expectations and attitudes on decisions to seek professional help. *Journal of Counseling Psychology*, *52*(4), 459-470. doi:10.1037/0022-0167.52.4.459

von Baeyer, C. L., Piira, T., Chambers, C. T., Trapanotto, M., & Zeltzer, L. K. (2005). Guidelines for the cold pressor task as an experimental pain stimulus for use with children. *The Journal of Pain*, *6*(4), 218-227. doi:10.1016/j.jpain.2005.01.349

Wager, T. D., Atlas, L. Y., Lindquist, M. A., Roy, M., Woo, C., & Kross, E. (2013). An fMRI-based neurologic signature of physical pain. *New England Journal of Medicine*, *368*(15), 1388-1397. doi:10.1056/NEJMoa1204471

Walsh, N., Schoenfeld, L., Ramamurthy, S., & Hoffman, J. (1989). Normative model for cold pressor test. *American Journal of Physical Medicine & Rehabilitation*, *68*(1), 6-11.

Wampold, B. E. (2010). Research on the effectiveness of psychotherapy. In , *The basics of psychotherapy: An introduction to theory and practice* (pp. 61-83). Washington, DC, US: American Psychological Association.

Wang, S., & Lau, A. S. (2015). Mutual and non-mutual social support: Cultural differences in the psychological, behavioral, and biological effects of support

seeking. *Journal of Cross-Cultural Psychology*, *46*(7), 916-929. doi:10.1177/0022022115592967

Wang, L., Zhang, Z., McArdle, J. J., & Salthouse, T. A. (2008). Investigating Ceiling Effects in Longitudinal Data Analysis. *Multivariate Behavioral Research*, *43*(3), 476-496. doi: 10.1080/00273170802285941

Ware, J. E, Manning, W. G., & Duan, N. 1. (1984). Health status and the use of outpatient mental health services. *American Psychologist*, *39*1090-1100. doi:10.1037/0003-066X.39.10.1090

Weinstein, M. C., Berwick, D. M., Goldman, P. A., Murphy, J. M., & Barsky, A. J. (1989). A comparison of three psychiatric screening tests using receiver operating characteristic (ROC) analysis. *Medical Care*, *27*(6), 593-607. doi:10.1097/00005650-198906000-00003

Willingness. (n.d.). *Merriam-Webster Online.* In Merriam-Webster. Retrieved May 1, 2013, from http://www.merriam-webster.com/thesaurus/willingness.

Winterling, J., Wasteson, E., Arving, C., Johansson, B., Glimelius, B., & Nordin, K. (2010). Factors associated with psychological distress and grief resolution in

surviving spouses of patients with advanced gastrointestinal cancer. *Supportive Care in Cancer*, *18*(11), 1377-1384. doi:10.1007/s00520-009-0753-9

Wolf, S., & Hardy, J. D. (1943). Studies on pain. Observations on pain due to local cooling and on factors involved in the 'cold pressor' effect. *Research Publications of The Association for Research in Nervous & Mental Disease*, *23*,123-142.

Wolfe, F., Ross, K., Anderson, J., Russell, J., & Hebert, L. (1995). The prevalence and characteristics of fibromyalgia in the general population. *Arthritis & Rheumatism*, *38*(1), 19-28.

Wolff, B., Burns, J. W., Quartana, P. J., Lofland, K., Bruehl, S., & Chung, O. Y. (2008). Pain catastrophizing, physiological indexes, and chronic pain severity: Tests of mediation and moderation models. *Journal of Behavioral Medicine*, *31*(2), 105-114. doi:10.1007/s10865-007-9138-z

Wong, J., Brownson, C., Rutkowski, L., Nguyen, C. P., & Becker, M. S. (2014). A mediation model of professional psychological help seeking for suicide ideation

among Asian American and White American college students. *Archives of Suicide Research*, *18*(3), 259-273. doi:10.1080/13811118.2013.824831

Woo, C., Koban, L., Kross, E., Lindquist, M. A., Banich, M. T., Ruzic, L., & ... Wager, T. D. (2014). Separate neural representations for physical pain and social rejection. *Nature Communications*, *5*, 5380. doi:10.1038/ncomms6380

Woodrow, K. M., Friedman, G. D., Siegelaub, A. B., & Collen, M. F. (1972). Pain tolerance: Differences according to age, sex and race. *Psychosomatic Medicine*, *34*(6), 548-556. doi:10.1097/00006842-197211000-00007

Zane, N., & Yeh, M. (2002). The use of culturally-based variables in assessment: Studies on loss of face. In K. S. Kurasaki, S. Okazaki, S. Sue, K. S. Kurasaki, S. Okazaki, S. Sue (Eds.), *Asian American mental health: Assessment theories and methods* (pp. 123-138). New York, NY, US: Kluwer Academic/Plenum Publishers. doi:10.1007/978-1-4615-0735-2_9

Zelman, D. C., Howland, E. W., Nichols, S. N., & Cleeland, C. S. (1991). The effects of induced mood on laboratory pain. *Pain*, *46*(1), 105-111. doi:10.1016/0304-3959(91)90040-5